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# ON THE
# THROAT

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Presented by

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of
Diseases of the Throat.

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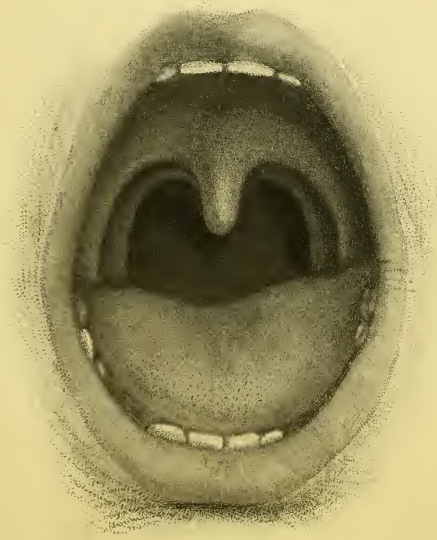
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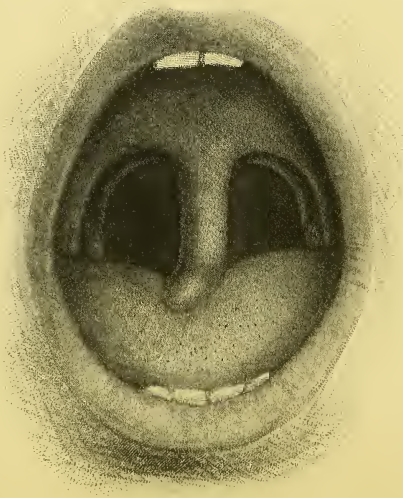
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# A TREATISE

ON

# THE ENLARGED TONSIL

AND

# ELONGATED UVULA,

AND OTHER

## MORBID CONDITIONS OF THE THROAT,

IN CONNEXION WITH

DEFECTS OF VOICE, SPEECH, HEARING, DEGLUTITION, RESPIRATION, AND WITH THE IMPERFECT DEVELOPMENT OF HEALTH, STRENGTH, AND GROWTH, IN YOUNG PERSONS.

BY

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ETC. ETC.

*FOURTH EDITION.*

LONDON:
JOHN CHURCHILL, PRINCES STREET, SOHO;
AND
SAMUEL HIGHLEY, 32, FLEET STREET.
1851.

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# PREFACE

## TO THE FIRST EDITION, 1842.

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The following pages were written under the impression that the attention of the profession had never been sufficiently directed to the subject of morbid conditions of the throat, in connexion with defects of voice, speech, and hearing, with the development of health and strength, and consequently with the growth of young persons.

The chief points insisted on in the book are:—

1. The extreme prevalence of tonsillary enlargements, and other morbid conditions of the throat, in this country.

2. The variety of effects these morbid conditions produce, and the important functions they embarrass or seriously injure.

3. The different positions taken up by enlarged tonsils and the regular dependence of certain forms of disorder in relation thereto.

4. The facility, safety, and almost painlessness with

which morbid growths may be removed from the tonsils—a subject upon which much doubt and difference of opinion have hitherto prevailed.

5. The impunity with which the uvula may be removed; its loss entailing neither present nor subsequent inconvenience.

## PREFACE

### TO THE FOURTH EDITION.

The flattering reception with which each succeeding edition of this work has been honoured, cannot be otherwise than a source of extreme gratification to me; and it is no less satisfactory to be able to state, that, with the enlarged experience and opportunities of observation afforded me, since the first edition appeared, now eight years ago, I see no reason to retract, or deviate from, a single opinion advanced at that time, and now to be found in the following pages.

15, *Savile Row, St. James's,*
*Jan.* 1851.

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## CHAPTER I.

### ANATOMY AND PHYSIOLOGY OF THE TONSILS, UVULA, AND SOFT PALATE.

On looking into the mouth, we observe, at its posterior part, the contraction which, under the name of the *isthmus faucium*, constitutes the line of division between the oral cavity and the bag of the pharynx and posterior nares. It is formed, above, by the uvula and edge of the soft palate; below, by the base of the tongue; and laterally, by the two arches of the palate, each of which arises from the base of the uvula, and passes downwards and outwards, the anterior diverging from the posterior in the descent, so that when they are seen at the side of the fauces on a level with the dorsum of the tongue, they are about three-fourths of an inch asunder. Below this point they proceed, one to be inserted into the side of the tongue, the other into the pharynx, at about its middle. In the sulcus formed by the divergence of the anterior and posterior arches, is situated the tonsil, which, when the parts are in a state of rest, is scarcely to be seen, the substance of the gland being hidden by the anterior arch; but when this is not too strongly developed, the convex surface of the gland sometimes becomes visible.

The *Tonsils*, or, as they are not unusually called, the *Amygdalæ*, from their resemblance to the almond in shape

and size, are glandular bodies, secreting a mucous fluid, from a considerable number of openings on their external surface, which is pressed out in great abundance upon the food, on its passage through the *isthmus faucium* into the throat. This process is effected by the joint action of the various muscles, more especially by the palato-glossus and palato-pharyngeus, which form the arches between which the tonsils are situated. The openings upon the surface of the tonsil are sometimes so large as to give it a cellular appearance; occasionally, also, it presents a lobulated or tuberculated exterior, especially when enlarged by disease.

The *Uvula* is the conically-shaped body which hangs from the centre of the loose edge of the palate into the pharynx. At its origin, it is broad and rather flattened, becoming rounded in its descent, until it terminates in an obtuse point. It varies considerably in length; sometimes it may be seen, to all appearance, inconveniently long, and sometimes so little developed as to leave it doubtful whether an uvula exists. In its natural state, it is said to point to the foramen cœcum of the tongue; but this is giving it credit for an independent muscular development, which it does not in reality possess. The uvula must be considered as little more than a prolongation of the mucous membrane which lines the whole of the throat, mouth, nose, &c. It is only found in man and the monkey tribe. In other animals, the loose edge of the palate, instead of being formed into arches by this central appendage, is found almost straight.

The *Soft Palate*, *velum pendulum palati*, or *palatum molle*, is described as a movable and fleshy curtain, extending from the back of the palatine arch into the pharynx, of nearly a quadrangular figure, with an anterior and pos-

terior surface, and four margins; one superior, one inferior, and two lateral: the anterior surface concave, presenting downwards and forwards, and studded with numerous mucous ducts; the posterior surface, directed upwards and backwards, and elevated at its sides. At the lateral margins of the soft palate commence the muscular folds, which constitute the palato-glossus and palato-pharyngeus muscles. The superior margin is attached to the posterior edge of the ossa palati, and the inferior hangs loosely into the pharnyx formed into arches by the pendulous uvula which arises from its centre.

The arches, velum palati, and uvula, are chiefly composed of muscular fibres, covered by mucous membrane, which is everywhere studied with follicles; the dorsum of the tongue also, at its posterior part, is furnished with numerous mucous glands, which give it the rough and tuberculated appearance it presents on looking into the mouth.

The muscles of the soft palate are—the levator palati, the circumflexus palati, and azygos uvulæ. The palato-glossus, passing down from the uvula to the side of the tongue, and constituting the *anterior arch*, assists above in forming the soft palate. In like manner, the palato-pharyngeus, passing from the uvula to the side of the pharynx, also contributes above to form the soft palate. These two last-mentioned muscles embrace the tonsil between them in the irregular triangular space or sulcus, in the manner already mentioned. The pain in deglutition which is experienced by persons with inflamed tonsils, arises from the pressure of the palato-glossus and palato-pharyngeus muscles on these glands.

These various parts are supplied with blood from the following sources:—The soft palate and uvula, chiefly

from the inferior palatine branch of the facial artery; the tonsils, from a twig of the facial, called therefore the tonsillary branch; and from another arising from the pharyngeal branch of the ascending pharyngeal. The carotid artery is situated considerably behind the tonsil, and when the gland is drawn out by a tenaculum from its place between the arches, the artery will be more than an inch distant. The nutrient vessels of the tonsils and adjacent mucous membrane are all of them exceedingly minute; when cut they speedily contract, so that no hemorrhage of consequence ever ensues on their division. The nervous ramusculi which supply the soft palate and the tonsils are, one of the small terminal branches of the glosso-pharyngeal nerve; a minute filament of the great palatine nerve, which passes through an osseous foramen in the nasal plate of the palate bone and enters the tonsil; and lastly, the middle palatine nerve, which penetrates the soft palate by the canal in front of the pterygoid hook, and is distributed to the soft palate and the amygdalæ. The various filaments thus derived form an interlacement around the tonsil, termed the *plexus tonsillaris;* their ultimate distribution is chiefly to the neighbouring mucous surfaces; so few fibres enter the tonsil itself that it possesses a very low degree of sensibility.

*Use of the Tonsils.*—The tonsils have been supposed to give tone to the voice, hence their name. But there can be no doubt that the principal use of the tonsils is to facilitate deglutition, by the lubrication of the morsel of food with their abundant mucous secretion in its passage into the throat. The mucous follicles, or lacunæ of the tonsils, retain their secretion till the act of deglutition takes place; it is then squeezed out by the approximation of the arches on each side of the throat, and received by

the morsel of food with which this action brings them in contact. This appears to be the only function of the tonsillary secretion; it possesses no other properties than those of ordinary mucus, and cannot, therefore, like the salivary, be supposed to have any share in the process of digestion. The food is still further lubricated in its passage into the pharynx by a supply of mucus from the numerous small glands with which the surrounding parts are studded, including the palate, the uvula, and the base of the tongue.

*Use of the Soft Palate and Uvula.*—During the act of deglutition, vomiting, or holding the breath, it has been shown by Dzondi that, by the approximation of the posterior arches from side to side, the lower parts of the pharynx and the cavity of the mouth may be almost entirely cut off from the posterior nares. It is this action, and not the mere raising of the palate, which enables us to swallow without regurgitation into the nose, or to vomit without allowing the matter to escape by the nose, or to perform the act of breathing through the mouth alone, when we wish to defend the olfactory organ from unpleasant odours. When the palatine arches thus act, the uvula lies passive between them, and contributes, in some degree, to complete the division between the nares and pharynx. It cannot, however, be of any great importance in this particular, as this appendage is only present in man and the quadrumana.

In singing, the uvula and palate are raised during the production of the higher notes; and it is a singular fact, that when the uvula is removed, and the soft palate in consequence permanently raised, the voice, in singing, can attain a greater altitude; oftentimes two full notes in the musical scale are gained, without any deterioration or loss

of the lower notes. That the uvula is of no great importance in the production of the voice or speech, is proved by the fact, that many cases are recorded in which it had been destroyed by disease, or where there had been congenital deficiency: in none of these cases, when the soft palate had been left intact, had anything abnormal been observed in the voice. Neither does the loss of the uvula, as far as my experience goes, interfere in the least with deglutition; the contraction of the palatine arches, and guidance of the food into the pharynx, take place with as much precision as before.

This brief sketch of the anatomy and physiology of the tonsils, uvula, and soft palate would be very incomplete without adverting more particularly to the important membrane by which these and all the surrounding parts are covered. Commencing at the mouth, at the junction of the skin with the red tissue of the lips, it passes inwards to line the mouth, and enters into all the salivary glands, giving off delicate prolongations to the different nasal cavities, the cells and sinuses in the upper jaw, os frontis, and the other bones of the cranium and face, which are subservient to the senses of hearing and smell. In the pharynx it becomes continuous with the mucous lining of the Eustachian tubes, and through them enters the tympanum as its investing membrane, covering the small membranes which close the inner ear, and also the external membrane of the drum; finally this part of the membrane spreads itself out on the surface of the mastoid cells, behind the organ of hearing. Passing downwards from the throat, its track admits of two important divisions: the one entering at the glottis, runs down the trachea and bronchial tubes, dividing and subdividing to an infinite extent, to line those innumerable cells in which the

vital properties of the air become imparted to the blood as it flows through the lungs; the other division, or the intestinal mucous membrane, continues down the gullet to the stomach, contributing greatly to the rugæ of that organ, and becomes the seat of the secretion of the gastric juice, the bile, pancreatic fluid, and of the multitude of minor glands with which the intestinal tube is everywhere studded; finally, it terminates at the anus, where it again becomes identified with common integument.

On considering the immense extent of this continuous mucous surface, its ramifications throughout cells, tubes, canals, reduplications, and convolutions in an almost infinite variety of arrangement and form, the principle of sympathy between one organ and another may be readily understood, and a valuable guide this principle is to us in the treatment of disease.

## CHAPTER II.

### ON THE ENLARGED TONSIL AND ELONGATED UVULA.

The variable climate and insular position of Great Britain render its inhabitants exceedingly liable to disorders of the respiratory passages and lungs. By consulting the tables of mortality, the fearful average of death from such diseases is made known to us. As might be expected from their prevalence, pulmonary affections have always received a large share of attention from medical practitioners; but the maladies of which I am about to treat have never been duly considered with that care and attention which the importance of the subject demands, either as to their effect upon the voice or hearing, or their influence in the production and development of pulmonary disease, as well as upon the general health.

The chief circumstances which act as predisposing causes of enlarged tonsils, and a morbid condition of the throat are—general debility, certain periods of life, and the lymphatic temperament, or strumous diathesis.

Childhood is the period in which enlarged tonsils most commonly appear. Sometimes they arise in infants at the breast, and go on to produce symptoms of an alarming nature. Many such cases occur, in which children are thought to suffer from affections of the chest, on account of the impediment of breathing. Even the medical attendant has been deceived in this respect.

From about five to ten years of age embraces the range in which tonsillary disease is most frequent; it is also very prevalent from the latter time to twenty years of age, after which it rarely manifests itself. In adults, a general thickening of the mucous membrane of the throat, without any particular implication of the tonsils, is more frequently observed. During the decline of life, tonsillary disease rarely, if ever, occurs.

The connexion between enlarged tonsils and certain ages admits of easy explanation. It has been already shown that the tonsils belong to the secreting glandular system. In early life, the secreting and absorbent glands are in the greatest state of activity, owing to the changes which are constantly occurring in the *matériel* of the body, to produce the rapid nutrition and increase of growth in childhood. On the other hand, in old age, the balance is in favour of absorption, because nutrition and secretion are carried on more slowly than in youth, not that absorption by the glands and lymphatics is more active than in early life.

This relative increase of absorbent power accounts, however, for the rarity of those glandular diseases in old age, which are so common in youth, and to which class hypertrophy of the tonsils belongs. In youth it is probably the activity of the glands which predisposes to most of the diseases of that period.

The strumous diathesis is a most powerful predisposing cause of tonsillary disease. Here the natural tendency to this affection is greatly aggravated by another specific predisposition to glandular disease. Children of scrofulous habit, without any actual disorder, possessed of a delicate complexion and fine texture of the skin, unusual softness of the limbs, veins of a deep blue colour, the

upper lip tumid, and the whole external surface of the body more fragile than is compatible with health, have unfortunately within their constitutions the germs of numerous and distressing ailments ready to start into activity upon exposure to exciting causes even of a slight or transitory nature. I have elsewhere remarked that when the skin is of very delicate organization, the mucous membranes throughout the whole body partake of the sensibility possessed by the external cutaneous surface. This is shown by the tendency to ophthalmia and soreness of the eyelids, soreness of the lips and nose, ear-ache, and other ear disorders, all of which proceed from morbid susceptibility of the mucous membranes. With such a predisposition, we can readily understand how likely a cold or sore throat is to excite hypertrophy of the tonsils.

Lastly, debility in children must be considered as predisposing to these morbid growths of the tonsils. From whatever cause it arises, whether congenital or produced by other diseases, it renders them, of course, more open to the impressions of the existing causes of disorders that can occur during the continuance of sound health.

*Exciting Causes of the Disease.*—The tonsillary glands, from their situation and exposure to various hurtful agencies, are of all the glands the most liable to become diseased.

Bearing an intimate connexion with the organs of deglutition, respiration, hearing, and the voice, they are necessarily exposed to all the influences which act prejudicially on these functions.

Cold, in its various forms, is the most frequent of all exciting causes of tonsillary disease. It may act in a gradual manner, by producing chronic enlargement, without any very striking symptom to mark its progress,

or it may produce them more rapidly by one severe attack of catarrh, or by several milder attacks following each other in quick succession. Influenza is also another very common cause of a morbid state of the tonsils; here, likewise, there is commonly a marked degree of inflammation about the throat, which in a chronic form often continues long after the acute stages of the disease have passed away. It is surprising how large a number of adult patients refer tonsillary disease to the date of one of these periodic visitations.

Cold is also the usual cause of common inflammation of the tonsils (cynanche tonsillaris), which often proceeds to suppuration of the glands. It is rare for this affection to disappear altogether, the seeds of morbid enlargements of the glands being almost surely left behind, and their hypertrophy in its turn rendering the patient again liable to repeated attacks of acute inflammation, while each accession of disease increases the size of the tonsil to such an extent as sometimes to endanger life.

The eruptive fevers are a prolific source of throat disease, especially affecting the tonsils. It is well-known that in scarlatina, measles, and small-pox, particularly in the two first-named fevers, *sore throat* is one of the most prominent and characteristic symptoms. During their progress, the tonsils are implicated; and unless great watchfulness is exercised in convalescence, against cold and other evils, there is always in delicate children great danger of these glands becoming permanently and distressingly enlarged.

When scrofula has manifested itself in the constitutions of children, and has shown itself in glandular disease, particularly of the neck and face, it is extremely rare for the tonsils to remain free from morbid enlargement.

A French writer (Colombat) states, that various indigestible substances, such as nuts, walnuts, &c., produce hypertrophy of the tonsils. This may be regarded as problematical, but there is no doubt that *dyspepsia* is a great cause of the disease, as one of its most constant symptoms is an irritable, inflamed, or congested condition of the fauces and pharynx. On looking into the throat, the gullet appears red and vascular, there is a sensation of heat and dryness; and if this state continues, it seldom fails to become complicated with disease of the tonsils. It ought to be remarked that dyspepsia, to produce the latter effect, must exist either in youth or middle age, the tonsils being seldom affected from indigestion after the latter period.

Elongation of the Uvula.—Elongation of the uvula, from a morbid condition, which is usually denominated *relaxation*, is the most frequent form in which this appendage to the palate becomes affected. Few persons, in our humid climate, pass through life without experiencing annoyance from this troublesome affection. In persons of delicate constitutions, it is readily induced by any source of debility, and is very often one of the first signs of deranged health. Long-continued wet weather, or the prevalence of an easterly wind, will occasion this condition of the uvula. Persons liable to catarrh are very apt to suffer after the complaint has run its course from the same cause; and those only who have experienced it, can credit the irritation and annoyance which such a state of throat creates. Those who are subject to the affection, are sometimes able to judge and even fortel the weather. Where there is any predisposition, a change from dry to wet weather, or from the south to the east

wind, will readily produce an irritable and relaxed condition of the uvula.

In those with marked predisposition to pulmonary consumption, the weakness of the respiratory organs is generally participated in by the throat; and it is not unreasonable to suppose that the fits of spasmodic cough, in cases of supposed incipient phthisis, are often mainly attributable to the condition of the throat and uvula of which we are treating.

A great proportion of cases which are said to be cured cases of consumption, are, I suspect, of this description.

The elongated uvula is frequently a sequela of the eruptive fevers and sore throat. Irritating fumes liberated in the process of many mechanical and chemical arts exert their first ill effects on the uvula and fauces. Bodies inhaled in a state of minute division with the breath, also occasion much mischief to these parts: needle pointers, stonecutters, and many other mechanics, are exposed in this manner to injury. Two of the most marked instances of suffering from irritable and enlarged uvula which have come under my notice, and in which the most striking relief was afforded by treatment, were caused by the frequent inhalation of chemical fumes. One case was that of a workman in a brass foundry, where noxious gases were evolved in the preparation of the metal. The other occurred in a gentleman, a philosophical chemist, who passed a great deal of his time in his laboratory.

Disease of the uvula is one of the most frequent maladies of the voice to which singers and public speakers are liable. Any sudden, violent, or long-continued exercise of the voice is apt to occasion relaxation or enlargement. Sedentary habits and the habitual use of intoxicating

liquors may also be enumerated among the causes of this affection.

Lastly, I would adduce *dyspepsia* as a frequent cause, as well as effect, of uvula disease. The explanation offered under the head of tonsillary enlargement, applies to the uvula with almost equal force. The throat passes from a state of sub-acute inflammation of the mucous membrane to general relaxation and thickening, in which the uvula participates.

*Nature of the Changes produced in the Tonsils and Uvula.* —The chronic disease of the tonsils usually met with cannot be strictly termed *hypertrophy*, which signifies an increased nutrition of the parts, inasmuch as the augmented size does not consist of the proper glandular substance, but of deposits of fibrin, which are gradually thrown out during the inflammation or irritation to which they are subject, and in process of time become organized. This organization takes place only to a limited extent, as they never possess much sensibility, when of the largest size, unless acutely inflamed; and they receive so small a supply of blood in their enlarged state, that even when cut into, little or no hemorrhage takes place.

The tumours ordinarily increase in a very gradual manner; and from their low degree of vitality, would often escape notice, but for the train of evils they usually excite. If felt by the finger, they are generally hard and scabrous; but in many instances, even where they have existed a long time, the induration is altogether absent, and the diseased glands are so soft as to break down repeatedly, if laid hold of by a pair of forceps. In others, the mucous cells on the surface of the tonsils are enlarged, and when such is the case, there is a copious secretion of viscid phlegm. More rarely they become filled with solid mat-

ter of a dirty white colour, which, from its calcareous appearance, I have thought similar to the deposit on the teeth, probably originating in the same way as the crusta petrosa, from the salivary and other secretions of the mouth.

In three or four instances, I have found calcareous deposits imbedded in the centre of the diseased growth. In the case of a young lady, the daughter of a surgeon at Woolwich, I found a calculus, closely resembling a piece of rock-coral in its arrangement.

Morbid affections of the uvula may consist of simple elongation, hypertrophy, or infiltration with serous or fibrinous matter.

In elongation, there is no increase of size, the uvula hangs down lower than usual, the muscles of the palate appearing to have lost their healthy contractile power, by which ordinarily the uvula is kept sufficiently high in the throat not to interfere with any of the functions of the neighbouring parts.

The degree of enlargement and elongation to which this body is liable varies very much. Cases are on record in which it could be made to protrude from the mouth. Instances have occurred in my own practice, where it could readily be brought by a tenaculum so far forward as to touch the front teeth. The thickening, also, to which it is subject, may go on until it has increased to three or four times the natural size.

In its hypertrophied state, the uvula is merely larger than usual, and unless it be greatly increased in volume, no great evil would result from this circumstance; but an unusual degree of irritability is almost always superadded,

so as to occasion violent irritation of the neighbouring parts from causes even of a slight nature.

Where the enlargement is produced by effusion of serous or fibrinous matter, the accumulation takes place in the submucous cellular tissue. Where the increase of size is from fluid, there is evidently an œdematous appearance, and the uvula is softer than natural: where it is from deposition of fibrin, it is, on the contrary, harder than the healthy uvula: a further distinction exists in its being pale in the one case, and generally of a deep red colour in the other.

## CHAPTER III.

### EFFECTS OF MORBID CONDITIONS OF THE THROAT ON THE VOICE AND SPEECH.

In treatises on defects of the vocal organs, sufficient distinction has not been made between the disorders of the *voice* and *speech*. Thus, some of the best physiologists have looked to the organ of voice for an explanation of many of the maladies proper to the organs of articulation. The term *voice* applies properly to the sounds produced by the action of the air on the vocal chords in the larynx. These sounds vary in extent from the lowest musical note of the natural register to the highest of the falsetto, all of which are produced in the larynx; the different notes being formed by the altered states of tension in the chordæ vocales, the different shapes assumed by the rima glottidis, and the whole of the vocal chords being acted on, or only in certain parts. Thus the high and falsetto notes are given out when the chords are in a state of tension, and the graver ones when they are, comparatively, in a state of relaxation. These, with the variations of tone and *timbre*, are all the qualities of the voice properly considered by itself. In this sense many of the lower animals, from the deep growl of the lion to the shrill note of the wren, possess the gift of voice; nay, they have more, in the power which many have of in some degree modifying the

elementary sounds, so as to make them indicative of various passions, and in singing birds of modulating them to most melodious music.

*Speech*, on the other hand, is that power, possessed by man alone, of so combining and altering the primitive sounds, after they have issued from the larynx, as to form articulate language. Taken by themselves, the sounds of the larynx, even from the highest to the lowest note of the gamut, would go but a short way towards interpreting to his fellows the intellect, moral affections, and propensities of man. The sounds of the larynx may be considered the simple, and those of the organs of speech the compound, elements of language devised by the mind. Different classifications of articulate speech have been made by various physiologists; by far the most perfect is that which divides it into guttural, nasal, lingual, dental, and labial.

I may illustrate what I have here said by likening the instrument of the human voice to an organ, with which it most readily admits of comparison. The wind-chest may be considered in the place of the lungs; the notes the chords of the larynx possess, as the holes of the instrument; the throat, cavity of the mouth, and nasal tubes, being analogous to the pipes. But we cannot proceed further with the simile, if we confine ourselves to the organ alone. The power of articulation possessed by the tongue, palate, lips, and other parts under the direction of the mind, are not comparable to any parts of the organ itself, but rather with the hand and intellect of the performer on the instrument.

I think these prefatory remarks necessary, because, even in the present day, many persons look for the cause of stammering and other impediments of speech, to the

larynx and glottis, while they are undoubtedly disorders of the power of articulation alone.

*Aphonia*, or loss of voice, generally comes on after one of the severe catarrhal affections to which persons with an unhealthy state of throat are always liable, and most probably depends on irritation or relaxation of the vocal chords. Colombat asserts that it is occasionally produced by the irritation of an elongated uvula, and relates several cases of the kind, one particularly, in which he performed excision of the uvula for its relief. There appear some reasons for supposing that it may happen from paralysis of the muscles of the larynx, especially those which move the chords; as the application of a strong stimulus to the throat sometimes effects a temporary restoration of the voice.

*Dysphonia* is a much more frequent concomitant of morbid states of the uvula and tonsils. According to the amount of disorder in these parts, it varies from severe hoarseness and painful utterance to the slightest grades, in which there is only an increase of fatigue after protracted vocal exertion. In our own variable climate, the changes of temperature, and other noxious influences to which the throat is exposed, are in such constant operation, that I believe it very rare for a native to preserve his voice uninjured. I cannot believe that the inhabitants of the south of Europe have any more delicate organization of the vocal organs than ourselves; their superiority, most probably, is owing to the healthier condition of the throat and larynx, which a milder climate preserves. It is a curious fact, that even the birds of the favoured parts of Italy and southern Europe, sing much better than birds of the same kind in more northern countries.

Dysphonia is more common among persons engaged in

public speaking than others. When a morbid state of the throat is once established, any severe exercise of the voice is pretty sure to occasion an aggravation of the complaint, so as to affect the voice. I have had opportunities of seeing, in cases of clergymen, several fine voices quite broken up by throat disorder. How usual is it to hear of clergymen being obliged to suspend their duties on account of weakness of the voice! Observation has convinced me, that in nine cases out of ten the tonsils are enlarged, or the uvula in an irritable state, the voice, even when least affected, becomes weak if exercised for a considerable length of time; the clear resonance of the natural voice is changed for a harsh and disagreeable tone. This deterioration is commonly known by the term *thick speech;* the voice cannot be understood at anything like the natural distance; either there is an unpleasant drawl, or the words are mumbled together in a confused manner; the variations and flexibility of the voice, which add so much to its expression, become altered to an unvarying monotony. These are some of the consequences of enlarged tonsils, when they project from the palatine arches, or hang down towards the glottis. When the morbid growth extends upwards, and interferes with the motion of the soft palate, or encroaches on the cavities of the nose, the voice becomes *nasal;* the individual appears, in common parlance, to talk through the nose, a designation which is singularly inapt, inasmuch as this disagreeable mode of speaking depends on obstruction, and is really an inability of speaking through the nose, instead of that which is generally understood by the phrase.

When the tonsils become enlarged in children, about the time they first begin to talk, they excite a very baneful influence on the progress of speech. The child learns to

talk very slowly, and generally in an imperfect manner, producing what is generally understood by the term *drawling;* he is often quite unable to effect the combined movements necessary to pronounce certain letters, as *l* or *r;* the attempt to utter them being balked, as it were, and other sounds produced in their stead. In cases where the ability to speak properly existed before the appearance of enlarged tonsils, the voice and speech are invariably injured as the diseased growth increases, the tone of the voice becomes disagreeable; and from the difficulty of producing whole words perfectly, children slur them over, and leave out those sounds which are uttered with least ease, so as to give their speech a very imperfect and unintelligible character. Children thus affected experience the greatest difficulty in attaining the pronunciation of a foreign language. I have no doubt that many of the most glaring vices in speaking depend on these causes when they occur in early youth.

My opinions on the subject of stammering are well known. Since the first promulgation of my views on the subject, my sphere of observation has been very extensive; and I have seen nothing to invalidate, but much to confirm, the hypothesis I was led to advance—namely, that certain varieties of stammering are caused by physical obstruction in the throat. The cases which first prompted the idea, in which the cure of deafness by the removal of throat obstruction was followed by the relief of stammering, which accidentally co-existed with the deafness, were very remarkable. However, I have since met with cases in which I removed enlargements from the throat with an especial view to the cure of stammering, and afterwards found that my operations not only effected a beneficial effect on the voice, but improved the hearing when the stammerers had been deaf.

The kind of evidence thus accidentally adduced, and much of an equally convincing kind, derived from the undoubted results of treatment, have seemed to me to offer no mean support, if not positive proof, of the opinion I have advanced of the occasional cause of stammering.

The effect of disease of the uvula and tonsils on the voice of singers is very marked: the chief evil to vocalists is, that its compass becomes contracted and its richness decreased. Where the uvula is implicated, these effects are produced to a still greater degree, and the voice is affected in various other ways. I have seen several instances, some of them in professional singers, in which one, two, or even three notes were lost in consequence of disease of the uvula. There could be no doubt as to the amount of the injury, because I made the change effected by treatment serve as the measure of the alteration from the normal state, and I found that many of my patients regained notes to the amount I have mentioned. In addition to the loss in compass and volume, an irritable or elongated uvula greatly diminishes the time during which a singer can use his voice with full effect. The same amount of vocal exercise which, in a state of health, would only prove agreeable and beneficial, will then weaken the voice so much as to require some time for its recovery, or even produce permanent deterioration. An irritative cough is generally cotemporary with the weakness of the voice; and I have known singers cough for half an hour after any considerable exertion, so that they entertained serious thoughts of relinquishing their profession from the dread of pulmonary disease, when no other morbid symptoms existed besides irritation and relaxation of the uvula. During the persistence of this form of throat disease, any violent exercise of the voice is fraught with danger. There

are many cases on record in which persons have, after singing music which required great physical effort, been attacked with fatal inflammation of the throat, or they have fallen victims to disease of a more protracted kind, originating under the same circumstances.

The fact that hypertrophy, or prolapsus of the uvula, may diminish the volume and compass of the voice, and that the removal of the diseased uvula not only restores them, but sometimes confers additional notes, is a discovery entirely originating from the operative treatment I have proposed. Physiologists had previously known that the velum pendulum palati and uvula are raised during the production of the higher notes; but it had never been suspected that the uvula or palate had any share in aiding the production of acute sounds. The chordæ vocales were looked upon as the sole cause of the variation. I do not offer any explanation of this singular phenomenon, but merely state the fact. The gain to the voice after the excision of the uvula, under these circumstances, is not, however, in the higher notes alone, but it increases also the richness of the lower notes of the voice, though in a less striking degree.

## CHAPTER IV

### EFFECTS OF MORBID CONDITIONS OF THE THROAT ON THE LUNGS AND RESPIRATION.

THERE are two distinct varieties of tonsillary enlargement which may interfere with the respiratory process. In the one, the morbid growth projects from between the palatine arches, so as almost to touch its fellow on the opposite side; in the other variety, the enlarged tonsil hangs down into the throat, the neck of the tumour being contracted, so as to give it a pyriform appearance.

Sometimes the size of the tonsils is so considerable, that these bodies, one on each side, the uvula and velum above, and the base of the tongue below, approximate together so closely as to leave but a very small aperture for the ingress and egress of the breath. From the contiguity of the tumours to the glottis, and their encroachment on the œsophagus, the swallowing also is impeded; but in our estimate of the amount of impediment, the size and diameter of the throat, as well as the bulk of the enlargement, must be taken into account, the calibre of the throat varying so much in different individuals, that the same actual degree of disease will often produce very different results.

In the common tonsillary enlargements of childhood, the bulk of the tumours and the thick viscid secretion which they exude, seriously interfere with respiration.

The disease is often present during the first dentition, especially when this process is later than usual, and parents notice the hard breathing and rattling in the throat, but seldom refer it to the right source—on the contrary, the lungs are looked upon, and even treated, as the seat of the malady.

Should the diseased tonsils become inflamed, and, consequently, still further enlarged by an attack of catarrh, the patient is in imminent danger of suffocation.

When enlarged tonsils are present, swallowing a larger morsel of food than ordinary will occasion severe dyspnœa, and, strange as it may appear, a hearty laugh will sometimes cause the patient to become breathless and insensible for so long a time as to excite the utmost alarm for his recovery. This appears to depend in both instances on spasmodic closure of the larynx, and is probably a reflex action excited by pressure on the diseased tonsils.

At all times the mouth remains open, from the difficulty of obtaining a sufficient supply of air through the nasal passages; and whilst asleep, in consequence of this disagreeable obstruction, the eyes are only partially closed, as in a patient suffering from asthma.

During sleep, too, a low moaning is usually present, accompanied by snoring and stertorous breathing. We can very well account for the snoring, if we consider that the tonsils mechanically stretch out the pendulous palate, the vibrations of which, by the current of breath, produce this disagreeable noise.

In youth and middle age, the morbid affections of the throat are somewhat different in their nature from those of childhood, and of course are attended by other symptoms. At these periods of life, the tonsils are often enlarged, though not so frequently nor to such an extent

as in childhood; the uvula, also, is infinitely more prone to elongation, or to hypertrophy; an irritable condition of the throat is very common, so as to cause great predisposition to catarrh and bronchial affections. There is naturally a great tendency to inflammatory diseases at this the most active and vigorous time of life; and where there are enlarged tonsils, persons rarely pass though a winter without an attack of quinsy, or inflammation of the trachea, which are dangerous diseases at any time, but much more so when the throat is previously in a morbid state: this is particularly the case in scarlatina and measles. We can easily understand the increased risk which children incur who have the tonsils enlarged previously to their becoming the subjects of these eruptive fevers. The observation applies not only to the exanthemata, but to others of the disorders of childhood, especially hooping-cough, and during the period of second dentition.

Children who labour under chronic enlargement of the tonsils, are very much more likely to fall victims to *scarlatina* than those in whom a healthy state of throat exists before the accession of the fever. Many observations on my own part, and inquiries among my medical friends, have convinced me of the truth of this position.

Much importance has always been attached to the throat symptoms, but latterly the formidable character of this complication, or rather integral part of scarlet fever, has been more than ever insisted on. In the anginose variety, it is well known to be one of the earliest, and continues, throughout, the most marked and dangerous part of the disorder. The evils produced by the throat disorder are, difficulty of swallowing, violent cough, disturbance of the cerebral circulation, so as to cause severe

headache, or even delirium; and the patient is distressed beyond measure by the continued effort to expel the glutinous secretion which collects about the fauces. The inflammatory condition, without doubt, affects the whole of the throat, but engorgement of the mucous membrane and enlargement of the tonsils have the most considerable share in producing the swelling, irritability, and morbid secretion.

There is another dangerous and often fatal disease of children, to which enlarged tonsils bear a peculiar and important relation—namely, *croup*. I have had repeated opportunities of observing that children with enlarged tonsils are more liable than others to this disease, and that when it occurs in such subjects, it is more than usually dangerous. I have known cases in which children with throat disease had suffered many times from croup, in whom these attacks had ceased entirely after the removal of the morbid tonsils.

Mr. Rumsey, in a paper on epidemic croup, quoted in Dr. Cheyne's work on the pathology of the larynx, says, that "most of the cases were attended with inflammation and swelling of the tonsils, uvula, and velum pendulum palati, and frequently large films of a white substance were formed on the tonsils." At that time, Dr. Cheyne had not seen a case of pure croup with sloughs in the fauces, and only a few cases in which there was any inflammation or enlargement. Now, the frequent complication of tonsillary disease with croup has been satisfactorily made out, and is generally admitted. It is worthy of remark, that it is the epidemic form of croup in which enlarged tonsils most often precede the acute disease.

Enlarged tonsils, when inflamed, or occurring in children of irritable habit, frequently induce the crowing

respiration or spasmodic closure of the glottis. The morbid state of the tonsils and fauces excites, by reflex action, spasmodic contractions of the muscles of the larynx and aperture of the glottis. This is the best explanation to be offered of the fits of difficult breathing, the sudden gasping and terror, to which children are subject who have these enlargements. I have known young children, thus circumstanced, so alarmed by the occurrence of one of these fits of dyspnœa as to be afraid of lying down in bed. Some interesting cases of this secondary affection were published in 1831 by my father-in-law, Mr. Fletcher, of Gloucester. I cannot elucidate the subject better than by quoting one or two of his cases of "spasmodic stricture of the larynx:"—

"Mr. A——, aged about 40, had been accustomed for years to inflammatory sore throat. In April, 1829, he was attacked by this affection, for which he consulted his usual medical attendant. He reports that there was general redness and swelling of the fauces, a difficult and painful deglutition, with general disturbance of the system. There was no great difficulty of breathing, though it was noisy, as this process was carried on in a great degree through the nose. The treatment recommended by my friend, Mr. ——, was such as an intelligent practitioner would always direct, but which, from some causes unknown to me, were either never carried into effect at all, or very imperfectly. Unfortunately, too, the patient lived in the country. He took some opening and saline medicines, which were the extent of the remedies to which he chose to submit. For two days he appeared to be doing as well as persons with sore throats usually do; but on the fourth, a sudden and convulsive difficulty of breathing came on as he was sitting up in bed, and he fell backwards

instantly suffocated, before assistance could be obtained. No inspection of the body took place."

I give another case by the same writer:—

"There is in this young girl's (Martha Hooper) throat a chronic enlargement of both tonsils of an unusually large size; they nearly block up the opening into the pharynx. There is the induration of the chronic kind, but there is also great tenderness to the touch, and the scarlet blush of the acute, upon the whole of the fauces. She has pains in her neck, and round the back of her head, which are increased whenever she attempts to swallow. She is hot, thirsty, and has a quickened pulse. The patients in the ward say, that in the night she will suddenly start out of bed, and act and breathe in the most extravagant and alarming manner, her eyes appearing to start from her head, both hands working in the air as in fighting, and her breathing accompanied by a singular sound. She declares this extraordinary difficulty of breathing never takes place except under the present circumstances of the throat being inflamed by cold; that it occurs only when she sleeps, though getting up will not always relieve it, for the fit has frequently lasted a full half hour after she has risen."

This case was treated by leeches and active purgation, and relieved by the next day. "The active inflammation being removed, with the additional bulk of tonsil, their combined irritation no longer excited the dangerous action of the muscles of the larynx. Henceforward her nights were not disturbed by suffocating starts, nor the neighbouring patients terrified by witnessing so terrible and alarming a scene."

Such are the symptoms of the spasmodic affection produced by tonsillary disease. But this is only one of the

evil consequences arising out of it, which, even if it stood alone would be sufficient to call for more attention than has hitherto been given to this interesting subject. The cases detailed above were adults; in children the spasmodic attacks are more frequent, and are brought on by catarrh, exposure to cold, damp, or east winds. In them, as in croup, they generally occur with the greatest violence at night, and during sleep.

While children are subject to these spasmodic attacks, sleep can only be procured in particular positions, and then only at short intervals; if by chance the patient turns from the convenient position, he is suddenly seen to start up, frequently with a loud scream, wrestling, as it were, with the difficulty which oppresses him. Many cases have come under my observation, in which the parents were compelled to keep persons at the bedside of their children for months, and even years, from the dread of suffocation. In one case, upon whom I lately operated, the bedside of the patient was never left by the attendant for three years.

When tonsillary enlargements have existed for any length of time in children, a marked distortion of the features takes place; the eyebrows and forehead become contracted, the eyes project, the nostrils are enlarged, and the alæ of the nose erected in a peculiar manner; the mouth, also, is generally half open, which gives a look of vacuity to the whole countenance.

The general effect produced on the expression is so striking, that in a large assembly of children, I feel assured I should rarely err in pointing out those who labour under morbid growths in the throat.

Children with this affection are extremely liable to

colds, and to inflammatory disease of the lining membrane of the lungs. And, further, the influence on the lungs is so prejudicial, by the retardation of the development of these important organs, predisposing them to various diseases, that the constitution becomes permanently injured. It is well known that no one vital stimulus, not even food, is so necessary to the establishment of health and strength as a free supply of air to the pulmonary organs. From this fact we are chiefly to explain the great deterioration to the health which impediments to the full play of the lungs occasion, and the marked constitutional improvement which follows their removal. The rapidity with which the pale, sickly appearance of children gives place to the signs of health and strength after the successful treatment of enlarged tonsils, is truly remarkable. The frame becomes robust, and the general growth proceeds with surprising rapidity. In many cases, I have limited my treatment to the simple removal of the tonsils by the knife, in order to establish this important fact.

In constitutions predisposed to pulmonary disease, enlargement or elongation of the uvula is frequently the exciting cause of chronic disease of the larynx, the bronchial membrane, or even the lungs themselves. The attendant throat-cough is of a peculiar character: it is quick, and the sound more acute than that produced in coughing of a pulmonary origin. The expectoration, if any be present, is nothing more than a glairy fluid, composed of the ordinary mucus and saliva. The cough is aggravated by all debilitating influences, damp or wet weather, dyspepsia or mental disquietude. At night it is more distressing than in the day-time, particularly if

the patient attempts to lie on the back. Patients may have their rest disturbed for months from a cough of this kind, continuing in spite of the most judicious constitutional treatment, until the strength becomes greatly reduced.

It is the opinion of the best authorities on the subject, that frequent coughing deranges the circulation of the blood through the lungs, producing congestion, thus disposing them to organic disease. Colombat relates an interesting case of laryngeal phthisis, occasioned by disease of the uvula. As I have already remarked, I have no doubt that many persons who are said to be in the incipient stage of consumption, are the subjects only of irritable uvula and diseased tonsils. General emaciation, distressing cough, which by its reiterated attacks inevitably produces pains in the sides, by tiring the intercostal muscles, sleeplessness, and even night perspirations, which are the most prominent symptoms of consumption, may be caused entirely by morbid states of the uvula and tonsils. The facts of a case are before me, in which the patient had been treated for phthisis. After some time the derangement of health was found to arise from an irritability and enlargement of the uvula. Very energetic means were unsuccessfully resorted to. Tonics, painting the throat with a solution of the nitrate of silver, and the use of every description of gargle, all failed to relieve the cough and debility, till at length he was advised to try the effects of change of climate, by a voyage to the West Indies. After remaining there a season, he returned home quite well, though, upon any sudden atmospheric changes, or when affected by cold, he still feels a slight return of his former troublesome cough.

*I believe that, if physicians, in cases of suspected incipient phthisis, besides the inquiry into the constitutional symptoms and the exploration of the chest by the stethoscope, were to make it a rule to inspect carefully the state of the throat, an easy solution would be afforded to some of the most puzzling cases of apparent chest disorder.*

## CHAPTER V.

### EFFECTS OF MORBID CONDITIONS OF THE THROAT ON DEGLUTITION AND DIGESTION.

To interfere with deglutition, the direction of the morbid tonsil must be either inwards towards the median line, or downwards into the pharynx. The presence of one morbid tonsil is sufficient to produce such an effect, but when both are enlarged, the area of the throat may be so much encroached upon, as to render the act of swallowing one of extreme difficulty. Besides the physical obstruction, the healthy action of the surrounding parts is interfered with, and the muscular motions of the throat cannot be properly performed when such morbid enlargements exist. The passage of food from the mouth to the œsophagus being balked, the patient is often obliged to return the morsel of food from the fauces to the mouth, to be re-masticated before it can be made to pass into the pharynx. When children are observed to be much longer at their meals than is usual, such a condition of the throat may be suspected.

In some cases of tonsillary enlargement, partial paralysis of the muscles of deglutition takes place. One case is recorded, in which the paralytic affection was so marked, that the subject of it could not swallow until he had allowed a teaspoonful of brandy to pass slowly over the throat, the stimulus of which gave a temporary power to the affected muscles.

I have already shown in the second chapter that chronic inflammation and thickening of the mucous membrane of the throat is often caused by dyspepsia. On the other hand, these morbid conditions of the throat, whether arising from indigestion or other causes, re-act powerfully on the stomach itself, and injure the appetite and digestion. I need not enlarge on the intimate sympathy which exists between the stomach and throat. It is well known that by irritating the veil of the palate or the surface of the tonsils with a feather, nausea and vomiting can be invariably produced. When the fauces and the tonsils have acquired a certain degree of irritability, which often accompanies chronic thickening, the morbid sensibility of these parts continually acts on the stomach, producing painful nausea or vomiting, with as much certainty as mechanical irritation. This occurs to the greatest extent early in the morning, at which time it is frequently sufficient to take away all appetite for food.

I have known instances in which the morning nausea thus produced has continued for years. The sympathetic nausea occurs also from the coughing excited by a bad state of throat, or when there is a thick viscid secretion, which accumulates on the surface of the mucous membrane. These circumstances so injure the stomach, in many dyspeptic cases, that the throat disease becomes at last of as much importance as the stomach disorder, and requires to be treated as a separate malady. In other cases, I believe the throat affection, acting in the manner described, often lays the foundation of severe dyspepsia.

Much mischief results to the digestive organs from swallowing the vitiated secretions poured out in considerable quantity from the enlarged lacunæ of the tonsils when diseased; the cells in these glands become filled

with secreted matter almost similar to pus, which in the act of swallowing inevitably mixes with the food, and thus injures the digestion.

The lining membrane of the throat is sometimes in so irritable and congested a state as to bleed upon every slight occasion, the mere muscular movement of deglutition, or swallowing any food not of the softest kind, being sufficient to make blood ooze from the mucous surface. One case of this kind has made a deep impression on my mind, from the mistake to which such a condition of throat gave rise. A patient became seriously alarmed upon observing that several mornings in succession he spat blood. Having had some relations previously die of phthisis, he consulted a physician, who found him in a state of great excitement from an apprehension of his impending fate. On auscultating the chest, there appeared to be signs of pneumonia, which were treated by the usual antiphlogistic remedies, without producing any effect on the supposed hæmoptysis. After prolonged treatment, including a severe salivation, the sputa was no longer tinged with blood; but before convalescence became established, this symptom re-appeared, being, as before, chiefly confined to the morning. The attention of the physician now became directed to the throat, in which were found enlarged tonsils, and the vessels of the mucous membrane appeared tortuous and distended almost to bursting—in fact, closely resembling what has been called *hæmorrhoids of the throat.* It was now ascertained that the blood generally appeared after breakfast; and on close examination, it was plainly seen that the blood exuded from the enlarged pharyngeal veins, the very spot whence it escaped could sometimes be defined, and the coagulum formed on the bleeding vessel seen for some hours after the bleeding had ceased. Here

the passage of food and the increased muscular action of the fauces and throat necessary for swallowing, on account of the enlarged tonsils, produced symptoms which were considered indicative of serious organic disease. When the nature of the case became thus evident, tonics and astringent applications soon suppressed the hæmorrhage, and removed the condition which had given rise to it.

But it is in the acute forms of tonsillary disease that the function of deglutition is most impeded. I have already said, that in cases where they are enlarged, there is almost a certainty of their becoming inflamed in every attack of catarrh. I have also said, that in this state they give rise to a great predisposition to colds; thus acting both as the exciting cause, and as the aggravation of the acute disorder. When inflammation is present, the difficulty is modified by the amount of inflammation, and the irritability of the mucous surface. In simple sore throat it may entirely prevent the swallowing of solid food; and the muscular movements necessary to deglutition stretch the mucous membrane so as to cause considerable suffering, even when taking liquid food in the most careful manner. When the throat symptoms are severe, they are aggravated by a constant and distressing desire to swallow, and thus perform the movements which occasion most suffering. The inflamed mucous membrane conveys the sensation of dryness and of there being something in the throat which might be removed by a vigorous act of swallowing. Besides this, there is in most cases an increased secretion in the mouth, resembling salivation; and the patient is either obliged to add to his sufferings by constant deglutition, or to remain with his mouth open, allowing the saliva to escape in this manner. In severe cases of cynanche tonsillaris these symptoms are all much aggravated, the power

of swallowing is often entirely lost, or only small quantities of unirritating liquids can be got past the fauces. The most severe complication is, however, the spasmodic stricture of the larynx, to which these cases are subject, and which we have already seen may occasion death. A fatal termination sometimes happens from this cause in this form of disease; and I conceive that in fatal cases of throat disease, death must generally be caused by spasmodic closure of the glottis.

Fortunately acute inflammation of the throat is usually of short duration, so that the obstruction to deglutition must be looked upon chiefly as a painful and unpleasant symptom; but when the tonsils have suppurated, and left irritable sloughing sores, the difficulty of swallowing becomes the most serious part of the disorder. There is sometimes either the actual inability to swallow, or the patient is deterred from attempting it by the dread of suffocation. I have seen cases in which the ulcerations of the throat were of such an irritable and uncontrollable kind, as to prevent the ingestion of food quite as effectually as a stricture of the œsophagus. I have before me the notes of a case occurring in hospital practice, in which an adult suffered from sloughing tonsils after one of the exanthemata, in which the throat disease was so severe and protracted, that the patient for two or three weeks could only take food by means of the tube and stomach-pump, and eventually died of starvation, together with the constitutional irritation proceeding from the disease of the throat.

Sufficient has been said in the present chapter, to show the vital necessity of bestowing a more careful study on diseases of the throat arising from tonsillary enlargement, than they have hitherto received.

## CHAPTER VI.

### EFFECTS OF MORBID CONDITIONS OF THE THROAT ON THE ORGAN OF HEARING.

An analysis of the modes in which the enlarged tonsil interferes with the sense of hearing, offers a new and as yet an untrodden field for the student of aural disease. By modern writers, the most obvious connexion between deafness and diseased tonsils, that in which the enlargement presses on the guttural extremity of the Eustachian tube, has been overlooked. Kramer entirely denies the existence of deafness from this cause, and Itard scarcely refers to the subject, though it was held to be of much importance by many earlier writers. Among others, Wathen mentions it as one of the sources of deafness most certain to be removed "by chirurgical assistance;" and Valsalva relates a case of ulcerated tonsil, in which the presence of a tent blocked up the Eustachian tube and occasioned deafness, showing most satisfactorily what Kramer seems to deny, that these passages may be obstructed at their guttural extremities. By some it has been denied that the tonsil glands can ever obstruct the tube, on the ground that when the tonsils are enlarged to any extent, they become pendulous, and are removed by their weight from the natural position. This is by no means true, if assumed as the general rule, or, indeed, in any sense but as a rare exception. I have pointed out

that, when it does occur, the functions interfered with are those of deglutition and respiration. In the most frequent kind of enlarged tonsils, where the glands maintain their original position, or at least extend in every direction, the Eustachian tubes are generally compressed. There is another variety of enlargement which I am not aware has ever before been noticed; it is where the diseased growth is confined to the upper margin of the tonsil, and which, from being hidden behind the veil of the palate and the anterior palatine arch, is quite out of sight when the throat is merely examined by the eye. In numerous cases I have verified this interesting observation, and effected cures by the indications of treatment which the knowledge of it afforded. We never can be certain that the tonsils have no share in producing deafness until these bodies have been examined carefully with the finger. In some instances, where nothing morbid was visible in the throat, the upper part of the tonsils has been of such magnitude as to produce, in addition to deafness, nasal speech, from encroaching on the posterior nares. These novel views have afforded me the most gratifying results, and I feel assured they will exert considerable influence on the future treatment of deafness.

Whether the Eustachian tube is lessened by the general bulk of the morbid growth, or only by the pressure exerted by enlargement of that part of the gland nearest to the guttural opening, the effect is the same, and is easily explained by a reference to the physiology of the ear. The exclusion of atmospheric air from the cavity of the tympanum is universally allowed to cause deafness. This has been accounted for in various ways: by some it was thought that sounds reached the ear through the Eustachian tube more easily than by the external meatus, and

the fact that some deaf persons open their mouths when attempting to hear, was considered a confirmation of this hypothesis; but it is found that a watch, or any other sound, becomes more indistinct when applied to the vicinity of the tube than when held before the mouth or the auricle. Other physiologists believed the freedom of the Eustachian tube necessary to admit of the motion of the air of the tympanum, when it vibrated under the influence of the membrane of the drum. But the laws of acoustics do not admit of the motion of the contained air under the influence of sonorous undulations. The idea of Itard, that the tube performed a similar office for the ear which the hole in the drum-head does for that instrument, is equally incorrect. The hole is of use, not in assisting the vibrations of the air of the drum, but as a channel by which the sonorous undulations can reach the ear. Without the hole, the sonorous vibrations and the resonance of sound in the closed cavity would be equally intense, but there would be no means of conducting the sound to the external air and the ear but by the solid walls of the drum; and the sounds excited in the air by membranes as the drum-head, are only transmitted with difficulty and loss of power to solids such as the drum-case. The true explanation of the loss of hearing by closure of the tube seems to be, that the vacuum caused by the loss of air in the tympanum places the membrane of the tympanum under the influence of the atmospheric pressure. We can easily imagine how a weight of 15lbs. to the square inch must affect such a delicate membrane as the drum of the ear. The membrane of the tympanum, when the cavity is a vacuum, bears an actual pressure of more than 7lbs., as it is more than half-an-inch square; it becomes preternaturally tense, and its vibrations, on the

impulsion of sound, are greatly impeded. Unfortunately there is no *vis conservatrix* to defend the membrane from this condition, as the small muscles and bones of the ear act as pulleys and levers to make the membrane tense when liable to injuries from loud sounds; and there is no adaptation of an opposite nature but the free ingress and egress of air to and from the cavitas tympani.

Besides the closure of the Eustachian tubes by the actual pressure of enlarged tonsils, there are other modes in which these glands deteriorate the organ of hearing. They act as a constant source of irritation in the throat, and render persons liable to repeated colds which affect the whole mucous lining of the pharynx, nasal passages, Eustachian tubes, and tympanal cavities. There is always danger of these catarrhal affections exciting deafness, even when the original enlargement of the tonsils does not prove of itself a cause of loss of hearing. Sometimes when a small amount of tonsillary disease exists, it will occasion thickening of the contiguous mucous membrane of the Eustachian tube, or the engorgement and thickening will extend to the tympanal cavity, causing in either case deafness of a very intractable character. When there is hypertrophy of the tonsil glands, or disease of the uvula, a morbid secretion of the mucous membrane is kept up in the Eustachian tubes, and within the tympanum. This lodgment of mucus, which always tends to become inspissated, is as certain a cause of deafness as occlusion of the tube by thickening of its membrane; but it is not near so difficult of removal, and is occasionally got rid of by a sudden pop, caused by laughing, sneezing, coughing, vomiting, or some other sudden respiratory action.

I have observed some instances in which *otorrhœa* could be traced distinctly to enlargement of the tonsils; they

were cases in which the disordered condition of the throat had given rise to irritation within the tympanum, which had taken on inflammatory symptoms, and ended in suppuration, the matter discharging itself through the ruptured membrane of the drum. Another very troublesome complication of ear disease, *tinnitus*, often occurs as the sequel of irritation in the throat and hypertrophy of these glands. Tinnitus rarely exists without a marked degree of deafness; but it does sometimes happen when the tonsils are not of sufficient magnitude to occasion deafness, though loss of hearing generally follows when this distressing symptom has once established itself.

Elsewhere* I have insisted on the paramount importance of a healthy state of the mucous membrane of the ear to perfect hearing. I have advanced the novel view, that by far the greatest number of deaf persons have lost their hearing by a diseased condition of this same mucous membrane. This I have substantiated by facts, and have pointed out the better methods of prevention and cure which must result from such an improved knowledge of the pathology of the ear. The modes in which external agencies can affect the lining membrane of the tympanal cavity are, in the first place, through the external passage and the fibrous membrane of the drum, and in the second, through the Eustachian tubes entering to the ear from the throat and posterior nares. Of the two tracks there can be no shadow of doubt that the latter is by far the most frequent. The external meatus enjoys a comparative protection from cold on account of the presence of wax, and the structure of the *membrana tympani* forms a very efficient protection to the middle ear in this direction. On

* Medical Gazette, 1841.

the other hand, the mucous membrane of the throat, from its extensive sympathies with other parts of the body and its exposed situation, is more frequently disordered than any other part of the system of mucous membranes whatever. And it must be borne in mind, that the membrane of the throat is directly continuous through the medium of the Eustachian tubes; consequently the ear and the hearing are in danger of suffering whenever there is a morbid state of the guttural mucous membrane.

## CHAPTER VII.

### TREATMENT—MEDICAL, TOPICAL, AND OPERATIVE.

Medical treatment and dietetic restrictions are of paramount importance in the management of enlarged tonsils, especially when they occur in childhood or youth. It must be borne in mind that a large number of those who suffer from them are of the strumous diathesis; and even where this is not the case, there are commonly signs of general debility and impaired health, the state of the throat being indicative of derangement of the whole intestinal mucous membrane.

When, therefore, children are brought with pale, phlegmatic countenances, a soft, flaccid state of the body, and other evidences of a feeble, cachectic habit, combined with tonsillary enlargements, it is proper, before adopting any local treatment, to endeavour to recruit the general health.

At an early age it is comparatively easy to act on the throat, or on any other particular locality, by means which affect the body generally; but in the case of adults it is a matter of greater difficulty. My experience leads me to the opinion, that except in the instance of a morbid condition of the throat, arising from dyspepsia, or in simple relaxation of the throat and uvula, which sympathise to an immense extent with the state of the general health, the treatment in adults must be chiefly topical and operative.

It will hence be seen, that the following observations chiefly apply to the disorder as it exists in childhood and youth.

In children with a delicate habit of body, I am in the habit of prescribing a rhubarb purgative once or twice a week, or a daily tonic, composed of calumba, rhubarb, and sesquicarbonate of soda, in equal parts. This may be continued two or three weeks, when it can be omitted, and after a short interval resumed with increased efficacy, or it may be alternated with other tonics, such as quinine and steel.

In children of strumous constitution, or when enlarged tonsils exist in combination with actual scrofulous disease, the tonic powder here recommended may be usefully followed up by a course of iodine, or the iodide of potassium. I have already explained my view of the modus operandi of this latter most valuable medicine in affections of the mucous membrane of the throat.* At first it excites an increased secretion from the mucous membrane of the nose and throat; but after this primary effect has passed off, it possesses great power in imparting a healthy action and secretion to the whole of the mucous surface. I have found it will often restore the throat to a good condition, even where enlarged tonsils have existed a long time. The remedy should be administered twice or thrice daily, in doses of one or two grains, *largely diluted* with water.

When the matter secreted from the enlarged tonsils is copious and troublesome, it is sometimes advisable to administer an occasional emetic of wine of ipecacuan, to cleanse away the viscid phlegm which hangs about the throat, and proves extremely troublesome.

* Vide *Medical Gazette*, vol. i., page 587, session 1841.

In cases where the digestive organs are out of order, which is the case in a large number of adults suffering from this disorder, particular attention must be given to the stomach, and the usual treatment of dyspepsia adopted. Without this, the most judicious measures directed against the tonsils themselves will fail, the cause of the affection still remaining in operation and producing new effects as fast as we remove the old.

Purgative medicines form the general panacea for the diseases of children, and it is matter of experience that children bear aperitives well; but in such an affection as enlarged tonsils, which in the great majority of cases is combined with debility, active purgation cannot be tolerated. All that should be attempted is the regular evacuation of the bowels in such a manner as to stimulate the intestines to a state of healthy activity and secretion.

It must be evident that all the exciting causes of tonsillary disorder should be carefully avoided. Children should be exposed as little as possible to cold and damp, which are the most powerful of all the exciting causes. These, and the exposure to easterly and cold winds, in the winter and spring months, are sure to increase the growth of morbid tonsils, and are constantly in danger of exciting those acute and dangerous affections, to which these enlargements form a powerful predisposition, such as croup, cynanche, or spasm of the glottis.

Clothing is another important item in the management of children thus afflicted. I consider young children in this country are much too carelessly clad about the neck and throat; and I believe if this were reformed, tonsillary disease would be much less prevalent than it is at present.

Children with enlarged tonsils should be kept as much

as possible from the effects of scarlatina, measles, hooping-cough, and other disorders which in their progress bear any special relation to the throat; the danger to be apprehended from any of these diseases being, as I have already shown, much increased as long as these enlargements are present.

I consider the daily use of cold water as a lavement about the throat and chest, both in children and adults, as of great prophylactic importance. It can do little towards diminishing the bulk of enlarged tonsils, but it lessens the liability to catarrhal affections; and the means by which the tonsils attain the immense size they sometimes do, is the frequent recurrence of catarrhs, each of which adds somewhat to the size of the morbid glands. They certainly increase in this manner more than by a regular and gradual growth.

The too prevalent practice of dosing young children with *calomel*, I hold to be most injudicious and reprehensible. This medicine is positively sufficient to cause the condition of throat in which enlarged tonsils take their rise, and its administration often increases the size of these morbid growths in cases where they already exist. Its frequent use appears to be derived from the general belief which obtains, that children are exempt from its *specific* action. Notwithstanding this is, to a great extent, correct, I have often seen the most indubitable evidence of its mischievous tendency in the constitutions of children; and I am confidently of opinion that marked traces of its injurious operation may be transmitted by parents to their offspring. From the materia medica of children I would gladly see banished this potent and poisonous compound.

That peculiar state of the throat and tonsils occasioned by syphilis, or, what is far more frequently the case, by

excessive mercurialization, must be treated principally by constitutional means. The removal of enlarged tonsils in such cases would do little to improve the condition of the throat, but would incur the danger of sloughing and other inconveniences. Here the cause is decidedly general, and I know of no better remedy than small doses of the hydriodate of potash taken in the decoction of sarsaparilla; though a prolonged course of these medicines, and strict attention to diet, are necessary to eradicate the injuries produced by mercury, especially in lymphatic constitutions.

With respect to diet, a regimen calculated to give vigour and support is required. Children who suffer from chronic enlargements, and are of pale, lax habit, should have rather an abundant supply of animal nutriment. Bulky vegetable food and pastry should only be given sparingly, and the latter may as well be omitted altogether.

Change of air from town to country, or from country to town, has a surprisingly salutary tendency, and should always be resorted to for the restoration of delicate health in children.

These, then, are some of the most important points of medical and hygienic management in the purely chronic form of the disorder. Sometimes they will be sufficient to entirely remove the disease; more frequently, however, their combination with topical applications will be found necessary.

*Spasm of the Glottis.*—Children who are liable to the nightly spasm of the glottis and difficulty of breathing, require particular attention. All the more common causes of this secondary affection, such as lying with the head low, or surrounded by curtains, eating indigestible food catarrh, &c., should be sedulously avoided. Though so





frightful a concomitant, the attack seldom continues long enough to be dangerous, except when united with active inflammation. When in the fit, rousing the child, placing it to sit upright, and letting it have plenty of air, will speedily remove the spasm: but, like many other nervous affections, when it has once appeared there is a constant tendency to its recurrence, of which children are instinctively aware. They afterwards go to sleep in dread, and their tormentor is liable to harass them as long as the enlarged tonsils continue to act as a source of irritation in the throat. These spasmodic symptoms without inflammation rarely occur in adults, except in the case of delicate females of nervous temperament.

*Topical Applications.*—The chief local remedies which have been recommended in throat affections, are the different kinds of gargles. In this country they have consisted principally of solutions of astringent or stimulating substances. On the Continent they have been a much more favourite remedy, and a larger number of medicinal substances have been applied in this manner. In the work of Colombat on the voice, under the head of sore throat, we have a list of gargarisms recommended, under the heads of acid, tonic, styptic, irritant, antiscorbutic, antisyphilitic, antiscrofulous, &c. The common astringent gargle, composed of alum and infusion of roses, is, I believe, the only one of much value; but even to this a greater merit than is due has been accorded. The hot stimulating gargle of cayenne is decidedly improper.

Gargles might, with much more propriety, be spoken of as applications to the *mouth* rather than to the *throat.* Many of those who prescribe, and those who use them, fall into a mistake which I have never seen noticed, but which a little reflection would correct. If we examine ourselves

as to what takes place in "gargling," we shall find that the fluids fills the back of the mouth, but that the veil of the palate and the dorsum of the tongue entirely prevent the entry of the fluid into the throat. The noise is made by the rapid expulsion of bubbles of air through the fluid held in the mouth; but though the aperture of the fauces permits the breath to pass up through it, the vibration of the pendulous palate is so peculiar that none of the liquid passes down. After the most careful gargling, we shall find we have only wetted the mouth and the anterior surface of the soft palate and uvula; the parts behind these remain untouched. Thus the common and professional notion of gargling is clearly an error.

"*Gargling the throat,*" as usually employed, is a phrase as wide of the truth as "*speaking through the nose.*"

Fumigations and vapours, in throat disease, in many cases are preferable to gargles. A very rational plan was adopted by Mr. Vance, of applying solutions of different substances to the back of the throat, or any spot requiring them, by means of a piece of sponge tied to the end of a small rod.

In some cases, a plan I have devised will be still more useful—namely, that of passing medicated fluids into the throat through the nose, by means of a tube and elastic bottle. One great advantage of this plan is, that we can thus apply astringents, &c. to the upper part of the tonsils, which in the morbid state so frequently implicate the Eustachian tubes, and produce deafness. We can also thus reach the posterior surface of the uvula, which is far more sensitive and important than the anterior part.

In some cases it is preferable to apply the remedies in substance to the parts requiring them, as, for instance, when we wish to use them in a more concentrated state

than would be convenient in solution. In irritable conditions of the uvula and soft palate, producing the harassing cough which is known by the term *throat-cough*, or, as it might be more correctly termed, *uvula-cough*, relief may often be obtained by blowing a small quantity of powdered alum, through a quill, upon the parts themselves, or of putting the dry powder on the uvula and fauces by means of a camel-hair brush.

This irritable state of the throat is sometime relievable in children by sucking astringent lozenges, or by letting a little honey and borax dissolve in the mouth. Either of these means is more direct in its action than the use of a gargle.

Of the different substances that have any claim to be considered efficacious in diminishing the size of enlarged tonsils, nitrate of silver and iodine are alone worthy of the least confidence, and it must be confessed that little reliance can be placed even on these. They appear to harden and contract the size of tonsillary growth for a time, but after their disuse little appears to have been gained. In using iodine, I have generally used the compound tincture of the Pharmacopœia. Both these remedies locally applied promise to be much more efficacious in adults than in very young patients.

When enlarged tonsils exist in very thin children, they can frequently be felt externally. In such cases, especially when the age of the patient puts operative measures out of the question, an iodine ointment, applied night and morning in the external situation of the morbid growths, a little behind the angles of the jaws, is often of the utmost benefit, appearing to promote the resolution of the glands more than internal applications to these bodies themselves. The ointment I use is composed of one grain of iodine, a

drachm of iodide of potassium, and an ounce of spermaceti.

When the secretion from the tonsils is troublesome, these glands should be squeezed occasionally with the finger, so as to empty of their contents the lacunæ which open upon their surface.

When recourse is had to the nitrate of silver as a local application to enlarged tonsils, the caustic should be kept long enough to the part to cause sloughing, because it is the contraction and cicatrization that follow by which the best chance of permanently lessening the size of the morbid growth, is afforded.

*Enlarged Tonsils in a state of active Inflammation.*—When enlarged tonsils are in the first stage of inflammation, nothing is so immediately efficacious as scarification freely performed, so as to disengorge the tumefied surface of the glands. If this should fail to check the inflammatory action, leeches must be applied to the tonsils themselves, or the throat externally, or both; and if suppuration cannot be prevented, it should at all events be kept within as small a limit as possible. To the local bleedings, strict abstinence must be added, and all the points of the antiphlogistic regimen rigidly enforced. When matter has formed, which is indicated with tolerable correctness by fits of shivering, it should be evacuated as soon as possible. The touch will guide the surgeon as to the spot which must be entered by the lancet. This will sometimes be through the anterior arch of the palate, which becomes thin from being stretched out upon the enlarged tonsils, and at others near the surface of the tonsils themselves. When the inflammation is extensive, the cellular tissue around becomes implicated, and the tonsil itself is lost in the surrounding tumefaction. It is these cases which ren-

der puncture dangerous, as some parts more immediately in contact with the internal carotid than the tonsil may be wounded, and possibly this vessel itself. The rule, therefore, should be in all cases to make the puncture as nearly as possible in the situation of the tonsil which is free from danger. If practicable, the tonsil to be operated on should be seized by an Asellini's forceps, and drawn out towards the median line of the throat. After judicious puncture all the alarming symptoms usually subside. If there be any sign of sloughing, a solution of nitrate of silver is the best application. Throughout the treatment, rigid abstinence from all food of a solid or stimulating character should be observed. Swallowing should be avoided as much as possible, as the muscular movements of the throat greatly aggravate the pain and inflammation. These means rarely fail, unless the bodily health be in a bad condition at the time of the attack.

In the complication of inflamed and enlarged tonsils, with croup or scarlet fever, the utmost care and attention are demanded. In the early stage of both these diseases, except when scarlatina maligna is threatened, immediate excision is the safest and least troublesome plan. After the first stage has passed over without their removal, we must persevere in the use of the means enumerated above. Unfortunately, the risks of a fatal termination are here much aggravated.

The spasmodic stricture of the glottis, which is the chief cause of death in most cases of quinsy or enlarged tonsils in a state of inflammation, requires the most decided and energetic treatment. Where the strength will bear it, general bleeding to a large extent is required, or the local abstraction of blood must be carried to as large an extent, and made as immediately as possible. Twenty,

thirty, or even forty leeches should be applied to the neck externally, and the patient placed in a warm bath. If the symptoms yield not, as a last resource bronchotomy must be performed. I believe that this operation, in cases of purely spasmodic stricture of the larynx, whether arising from diseased tonsils or any other throat irritation, would save the lives of many patients. Unhappily, the operation is often delayed so long that the patient is too much exhausted beforehand to render it of any avail. It is a trying position for the surgeon, inasmuch as life may become extinct whilst he is meditating the necessity of the operation.

For the spasm of the glottis arising in the latter stages of scarlatina, measles, &c., in children with enlarged tonsils, little more can be done than affording to the patient a good supply of pure air, of a moderate temperature, and keeping the throat, &c., in as perfect a state of repose as possible, by prohibiting swallowing or talking; the sick chamber, moreover, should be kept strictly quiet, both as regards noise and motion. Every source of irritation should be avoided. As a proof of the extreme necessity of the utmost precaution, I have seen little patients in such an excitable condition under the circumstances stated, that the dropping a feather or a bit of paper on the surface of the body would have run the risk of bringing on the dangerous laryngeal convulsion.

When the means recommended in the first part of this chapter fail in dispersing the enlarged and indurated tonsil of children or adults, it is necessary to resort to *excision*. There are, however, a few cases in which this operation cannot be performed. They occur in children who are restless and unmanageable, and in adults, when the throat is too irritable to allow of the introduction of

the necessary instruments. In the first case, the operation must be deferred until the child becomes sufficiently sensible of the efforts made to relieve it; in the second case, the irritability must be attempted to be overcome by astringent gargles, and other appropriate treatment, or the throat should be accustomed to the contact of instruments, by a kind of rehearsal of the manipulations.

The propriety of removing enlarged tonsils in adults, where a bad state of throat is caused by the specific action of mercurial medicines, may be questioned. As already stated, the mere removal of enlarged tonsils in such cases, without due attention to the constitutional taint, will do little to improve this state of the throat, and might incur the danger of sloughing and other inconveniences; the cause being more constitutional than local. The most appropriate treatment for these cases is a prolonged course of medicines such as the different preparations of iodine and the decoction of sarsaparilla, with strict attention to diet, change of air, and moderate exercise. Great perseverance in treatment is necessary to eradicate the effects of mercurials in some constitutions.

As a general rule, the cure of enlarged tonsils should be first attempted by medical and topical treatment; but cases are often met with where the tonsils have been so long neglected, and are producing such serious mischief to the important functions in which the throat is concerned, as well as to the general health, that it becomes advisable to proceed at once to their removal by surgical means. By acting thus, a positive evil is at once got rid of, and from the harmless nature of the operation, there is nothing to counterbalance the great advantages resulting from the absence of these sources of mischief; besides, the means of strengthening the constitution can afterwards

be exhibited with greatly increased effect. Whenever a case can safely be left to medical treatment, it is advisable and prudent to do so; but when the morbid growths are so considerable, and of such long standing, as to render success by such means a matter of great uncertainty, I have no more hesitation in removing them than I should have in removing a poison from the stomach.

It may, perhaps, be argued that because, as strength is developed and age advances, enlarged tonsils disappear, it is therefore superfluous to resort to extraordinary means for their removal. But this is a dangerous opinion to hold, because where they have long existed, they cause other injuries, which do *not* vanish, though the enlargements themselves may be absorbed. Thus the great susceptibility to sore throat which they occasion, the increased danger they give to the exanthemata, and the confirmed deafness and permanent distortion of features they often leave, are quite sufficient to dispose of such arguments against their surgical treatment.

The danger, too, of procrastination is strongly exemplified in the following case, which occurred in the practice of an eminent provincial surgeon, who, like myself, has paid considerable attention to the subject of throat disease. He had been consulted by the father of a large family, relative to two of his children labouring under enlargements of the tonsils. The family resided many miles distant, and were not regular patients; my friend had only been applied to in consequence of his reputed skill in such cases. An early day was fixed for the operations, but in the meantime *scarlatina* attacked every member of the family. All did well except the subjects of the enlarged tonsils—they died.

So many cases are known to me equally illustrative of

the positive danger to life, setting aside their morbid influence on the health, from the presence of enlarged tonsils, more especially in young persons who have not passed through the eruptive fevers of youth, that I should no more think of suffering a child of mine to remain the subject of them than of sending it to Sierra Leone.

Surgical treatment by excision being in so many cases indispensable, it is highly satisfactory to know that the operation, with moderate skill, can be performed without the slightest risk, and, incredible as it may appear, frequently without the slightest pain. My own experience now extends to upwards of two thousand cases, each unattended by accident or subsequent inconvenience, whilst the great majority have been followed by relief of the particular malady, whether defect of speech, deafness, obstruction to respiration or swallowing, cough, or impaired health, which, singly or conjointly, may have necessitated the operation.

In the treatment of the relaxed and elongated uvula, the usual remedies have been astringent or stimulant gargles, and the application of the nitrate of silver, either in substance or in solution, for the purpose of contracting it or diminishing its sensibility. These means have been resorted to almost irrespective of the nature or cause of the complaint.

The most common form of disorder of the uvula is, undoubtedly, simple elongation. Many delicate persons suffer from it whenever they fall into feeble health, and especially when the digestive organs are impaired, or after an attack of acute catarrh. When it has not existed any length of time, the common treatment of gargles and stimulants will relieve the complaint; but when it occurs

after influenza, or is consequent on dyspepsia, these means are merely palliative. For the simple elongation I recommend the astringent gargle already prescribed; when it continues, notwithstanding its use, change of air, a tonic regimen, and strict regularity in diet are necessary. The application of the nitrate of silver to the part produces temporary benefit; but this, probably, springs from its diminishing the sensibility of the uvula for a time, rather than from any healthy change it produces in the uvula itself. The application should be made to the posterior surface of the uvula. This can easily be done by raising the uvula, and bringing it forwards with a forceps, so as to expose its posterior surface.

When the uvula, from infiltration of fluid into its substance, or from deposition of fibrin, has become actually enlarged both in thickness and length, the means recommended for simple relaxation may be tried, but they will rarely be entirely successful. In these cases excision is the best remedy, as it puts an immediate and permanent stop to the many annoyances to which an enlarged uvula so often gives rise. When the uvula is diseased, a morbid condition is generally present also in the whole mucous lining of the throat. This may arise from the same cause, whatever it may be, which produces the enlarged uvula, or it may be owing to the spread of irritation from the uvula to the parts around. When it is produced by the uvula, it can be cured promptly by the removal of this part. In other cases, attention must be given to the causes of the disorder, and gargles, attention to the stomach, and the general health, as the case may be, will prove the proper means of cure.

In the numerous cases in which I have resorted to excision of the uvula, I have never seen any ill consequences,

but, on the contrary, the most striking relief from the removal. I have often known the injury to the voice and the respiration, the harassing cough of years, removed in a moment by the loss of the uvula. The operation, moreover, renders the voice clearer than before, and increases its compass. In some professional singers I have proved that the excision of the uvula has gained for the patient one, two, or even three notes in the voice, and this not in the falsetto, but in the natural register.

Excision of Enlarged Tonsils.—When the enlarged gland has arrived at a state of irremediable induration, operative measures are indispensable for its removal. In my earlier operations, I tried all the means recommended by authors: ligature, caustic, the guillotine knife, common bistoury, and scalpel, neither of which was satisfactory. I found that a strong knife was necessary, which would not bend, as the probe-pointed bistoury does when opposed to an indurated tonsil; nor tear, in the scissor-like manner of the guillotine knife, an instrument which, however specious in appearance, will be found altogether inapplicable in practice, except in the rare cases where the tonsil is pendulous. The same remark applies to any apparatus for the application of ligatures. The scalpel I rejected, because of the risk of wounding the back of the throat with its point. In order to obviate these various objections, I constructed a knife with a strong back, hawk-billed extremity, and placed at an angle with its handle. With such an instrument, assisted by the tenaculum, the surgeon acquires perfect command over the morbid growth he has to remove.

*Operation.*—I am in the habit of performing the operation thus:—I place my patient opposite a good light, and

having requested that the mouth be opened to the greatest possible extent, I introduce the tenaculum (held in the right hand, if about to excise the left tonsil; in the left, if the right) over the tongue, and include within its grasp as much of the morbid growth as possible. I then draw out the diseased tonsil from between the pillars of the fauces diagonally across the throat; and over the bridge thus formed I introduce the knife, held like a pen. As I cut forward towards myself, I keep slightly dragging at the tenaculum, so that when the excision is completed, the enlarged gland, tenaculum, and knife, are all withdrawn at the same moment. In dexterous hands the operation takes less time than will the perusal of this brief description of its performance.

Excision of the Uvula.—In order to gain all the advantage, and insure no disadvantage from this operation, it is necessary that *the whole* of the uvula should be removed, and not part only, as has been the usual practice. It is owing to this partial removal that patients have occasionally been sadly inconvenienced by the irritation kept up by the food, in its passage through the isthmus, striking against the amputated surface. In consequence of such result, Dr. Bennati, a talented physician of Paris, who some years ago used to amputate the extremity of the uvula in singers, discontinued the practice. In the numerous cases in which I have performed *total excision*, I have never seen such a result.

It may, therefore, be set down as an axiom, that *shortening or snipping* the uvula is a most objectionable operation; whereas its entire removal, by which the palatine arches are thrown into one, is an operation which, in suitable cases, is to be commended. The utmost pains

have been taken to ascertain the results of loss of the uvula, but in no one case can I find that the slightest inconvenience has arisen from its removal.

The fact that the removal of the uvula involves no subsequent inconvenience to the patient is, of itself, of the greatest interest, both in a physiological and practical point of view.

*Operation.*—The patient being placed opposite a window, is requested to open the mouth to the utmost possible extent, breathing naturally, that is to say, with the expiration and inspiration as regularly performed as if nothing were about to happen. The operator then seizes the extremity of the uvula with the tenaculum, having his finger or thumb upon the spring handle, ready to disengage the instrument in a moment, in the event of any sudden and unexpected convulsive effort of the patient. Being assured of the necessary presence of mind of his patient, the uvula is drawn horizontally forwards into the mouth, and at the same instant the curved scissors are introduced over it, up to its very base, and its excision in the next moment completed.

Simple as the operation appears, it is often attended with considerable difficulty; and owing to the irritability of the throat, I have met with cases in which it could not be performed. In others, the slightest touch of an instrument, or even the finger, upon the tongue, was sufficient to produce vomiting. In such cases it is necessary to accustom the throat to the contact of instruments for some days before the operation is attempted.

I have ventured to lay it down as an axiom that a partial removal, or what is called *snipping the uvula*, is altogether objectionable, on account of the irritation which is apt to arise from the excised surface being constantly exposed to

injury by the passage of food, or the rubbing against it of the tongue. On the same account I consider it necessary to excise the uvula in an horizontal direction, so that the excised surface may present backwards instead of, as I have seen it when this point was unattended to, forwards. In fact, if the operation is well performed, the excised surface is not seen on looking into the throat.

A pair of curved scissors has been invented by Weiss, the merit of which is said to consist in rendering unnecessary the use of any other instrument. They are objectionable, for the reasons I have pointed out. Partial excision only can be made with them, and that always in the worst direction; for the moment the scissors touch the highly sensitive uvula and soft palate, up they both go, and frequently only the bare extremity of the uvula can be included between the blades. Whether, therefore, knife or scissors be used, a tenaculum, or hook, I conceive to be also indispensable.

## CHAPTER VIII.

### ON OBSTRUCTIONS OF THE NOSE.

From the consideration of morbid conditions of the throat and their concomitant evils, I am naturally led to the subject of the present chapter, which has pressed itself much on my attention.

There are few who have not at some time or other experienced the discomfort and inconvenience of inability to breathe through the nose. A large class of persons will be found permanently subject to this annoyance; and a much greater amount of evil arises from such a condition than has hitherto been imagined. The obstruction depends on chronic inflammation or thickening of the mucous surface, which throughout the windings of the nasal cavities and passages, goes by the name of the *pituitary, schneiderian* or *olfactory* membrane. It often exists to such an extent as to block up the passage of the nose entirely; and thus obstructs the principal channel through which respiration is, or ought to be, performed, as well as impedes the performance of various other functions, which will presently be adverted to. Owing to the great difference in the calibre of the nasal passages in different persons, it happens that in some the slightest tumefaction will cause obstruction, while in others their calibre is so large that it may exist to a great extent without producing inconvenience.

This kind of diffused enlargement of the mucous membrane, throughout all the convolutions and cavities of the nose, obstructs the passage quite as much as the presence of polypi.

Persons thus troubled are obliged at all times to keep their lips apart, or their mouth open, to enable them to breathe, and in time the features acquire a contracted and vacuitous expression, even in the most intelligent. As the mouth often closes involuntarily in sleep, the impediment to breathing becomes a frequent cause of broken and disturbed sleep, in the same manner as I have described when adverting to the effects of enlarged tonsils in this particular. This is especially the case in children. Cases are frequent in which they have a thickening of the nasal membrane to such an extent, that although it does not produce entire stoppage, yet the impediment is increased so as to render it complete on the slightest accession of cold. Here the trouble to the breathing, especially in attempts to sleep, becomes quite as distressing as when the tonsils are seriously enlarged.

The voice also becomes much affected, the back part of the nasal passage being converted into a shut chamber, by which the sounds produced in the mouth and throat acquire a nasal resonance and timbre, which make the voice more distorted than even enlarged tonsils. Owing to the want of a passage for the breath behind the soft palate, and through the nose, there is in some cases of this kind a great difficulty in pronouncing the letters which the movements of the soft palate are concerned in producing. It is, in short, of essential importance to a proper method of speech, that the air should have free ingress and egress through the nose.

For the same reason there is generally experienced a

difficulty in hawking mucus from the back of the throat and the posterior nares. Expectoration cannot be properly and freely performed. From the same cause, also, there is frequently a difficulty and even an impossibility of blowing the nose, which is excessively inconvenient and disagreeable.

The effects of this kind of obstruction to the sense of smell are very perceptible. Without the power of inspiring through the nose, we lose in great measure the capability of drawing odorous particles within the sphere of the olfactory nerve. In addition to the difficulty thus occasioned, it is certain that a tolerably healthy state of the mucous membrane is necessary for the proper exercise of the sense. Common catarrh may be taken as an instance, in which the obstruction caused by the swelling of the mucous surface, and the alteration in the secretion from the nasal, or schneiderian membrane, either blunts or temporarily destroys the olfactory sense. Those in whom the nose is permanently obstructed by thickening of the mucous membrane are much in the same situation, as in addition to the simple obstruction, the secretion of mucus is generally disordered either by excess or deficiency.

Besides the unpleasant effects on the expression of the face, the respiration, the voice, and the sense of smell, there is one other circumstance to which I would direct particular attention, from its being a novel view of a subject to which less importance has hitherto been attached than it deserves — namely, the connexion of nasal obstructions with defective hearing. I was led to this part of the subject by an interesting case, which came before me more than two years ago, where the other evils I have described were combined with deafness. A well-known stockbroker consulted me for deafness, who for

years had never been able to breathe through the nostrils. The mouth was consequently always slightly open, giving a vacant expression to the countenance, and the voice had assumed that peculiar modification and tone vulgarly, but erroneously, called *speaking through the nose*, owing to the closure of the windings and hollows of the nasal cavities. The obstruction in this, as in other cases, arose from a general thickening (the result of repeated inflammation) of the lining mucous membrane of the throat, nose, and ear. Catheterism of the Eustachian passages was employed with great success in restoring the hearing, but the relief of the deafness was scarcely more apparent and valued than the comfort afforded to my patient, by being enabled once more to breathe through the nose, which had been accomplished by the frequent passage of the Eustachian tube catheter along the floor of the nostrils. On the recovery of this patient's hearing, he was supplied with the elastic nasal probe, and has continued to use it ever since with as much regularity as his tooth-brush, the one being, he assures me, as indispensable to his comfort as the other.

I have since seen and treated many cases, in which deafness appeared to depend on the nasal obstruction to a much greater extent than in this case, where the affection of the mucous membrane extended into the ears. This induced me to seek for the cause which could produce such an effect; and I am come to the conclusion, that *a free state of the nasal passages is of great importance to the acuteness and preservation of the hearing.*

It is generally acknowledged that the presence of air is necessary in the tympanum, and also that the air should not differ greatly in temperature from the air on the external surface of the membrane of the drum. The means

by which these requirements are provided for are well known to be the Eustachian tube; but I believe, in addition to this, a free state of the nasal passage is a necessary auxiliary, and that, without it, the function of the Eustachian canal cannot be properly performed.

This view is supported by the anatomical position of the mouth of the tube, which points towards the external nasal aperture, and is directly in the line of the passage of air through the nose both in inspiration and expiration; further, the trumpet-shaped extremity of the tube, and its direction obliquely backwards to reach the middle ear, favours, and appears to provide for, the entrance of air to the tympanum in inspiration rather than in expiration.

It is not that simple stoppage of the nasal passages can cause deafness, because the nose may be closed without producing the slightest immediate effect on the hearing; but I consider that when it is permanently obstructed, the want of a free circulation of air in the tympanum lessens the sensibility and acuteness of the auditory organ, or favours the accumulation of mucus in the middle ear. By examining my own sensations in ordinary expiration, I believe that air does not enter the tympanum during this act, but passes out from the ear with the expiratory stream of air escaping from the nostrils.

In a sudden and forcible respiration, when a greater quantity of air is attempted to be expelled than can find a ready exit, it happens differently: it then regurgitates, and rushes into the Eustachian tube and tympanum with great force, and can be felt to strike against the drum, or heard escape through the external meatus in cases where the *membrana tympani* is perforated. The same occurs in yawning, in which, although the expiration is prolonged, it is more forcible than usual. In yawning, the greatest

effect of this kind is produced when the act is performed in a subdued manner with the mouth nearly or entirely closed. Air enters the Eustachian tube and middle ear to a still greater extent in sneezing, an act in which the communication between the air tubes and the mouth is sometimes shut off by closure of the palatine arches, so that the breath passes upwards, and escapes by the nostrils alone. There is in sneezing, also, a violent preliminary inspiration, which generally drives air up the Eustachian tubes with considerable force.

Hence it occurs that yawning and sneezing are occasionally the means of curing deafness, dependent on obstruction of the passages leading from the posterior nares to the ear, the sudden rush of air breaking up and expelling any inspissated mucus that may have accumulated therein. In many cases of deafness, also, which do not arise from obstruction, it is remarkable that sneezing and yawning frequently occasion temporary benefit and improve the hearing.

*Treatment of Obstruction of the Nose.*—Before my attention became especially directed to the subject, I was accustomed to depend on medical treatment alone for the removal of nasal obstructions; acting in this, in accordance with the principles laid down in the medical treatment of enlarged tonsils. This plan was, and is, often of great service in dissipating the tumefied state of the mucous membrane; but from observing the great amount of comfort and benefit which occurred from passing the Eustachian-tube catheter, in cases where the malady was complicated with deafness, I was led to adopt an instrument fitted more particularly for freeing and enlarging the passages of the nose. At first, I used the catheter for this purpose, but soon found it advisable to have a new

instrument, straight, to avoid the curve which exists in the catheter, and flexible, to accommodate itself to any sinuosities of the passages. This shape and material fit the elastic probe for passing readily along the floor of the nostrils, without occasioning the slightest inconvenience, and without difficulty.

The effects of this instrument have answered my most sanguine expectations. It has relieved a large number of cases, to whom other kinds of treatment would have been ill-suited and inefficacious. The majority of them were cases of simple obstruction; but it has also proved of essential service in cases of deafness, complicated with thickening of the mucous membrane. The passing of the probe once or twice a day soon dilates the canal to such a size as to permit the passage of air to and fro; and, in addition to this, it appears to exert a salutary influence on the tract of mucous membrane extending to the ear.

I have already, particularly in my work, "Deafness Practically Illustrated," developed my views relative to the condition of the mucous membrane in connexion with deafness; and it is in accordance with the principles there laid down, that I consider the naso-guttural probe acts in relieving deafness arising from disorder of the aural mucous surface.

Sternutatory medicines have often been recommended as a remedy for deafness, but for fulfilling the same intention, the probe will be found far more efficient. Its effects are somewhat different, though both, in appropriate cases, stimulate the nasal mucous membrane to a healthy action; but the elastic probe is infinitely superior, because it mechanically dilates the contracted passages, and does not rob the mucous surfaces of the natural secretion which

is necessary for their healthy condition, but of which sneezing tends to deprive them.

It will not be out of place to remark, that the habitual use of errhines, especially the common snuffs, have sometimes the effect of producing chronic engorgement of the mucous membrane of the nose, and thus occasion injury to the hearing and other functions.

In some individuals, the *septum narium* is inclined so much to one side, without any external disfigurement, that it is impossible to breathe, or to pass the probe through the contracted aperture. Where this is the case, the operation should never be attempted; and there is rarely any cause for it in cases of this kind, because of the increased size of the opposite passage. There are other cases, however, in which the nostrils and nasal canals are congenitally of small size, where the elastic probe, or any instrument capable of gradually dilating them, will be very beneficial. Of this kind was the case of a nobleman, whose nares were so small that the passage of the Eustachian catheter, in Paris, by Deleau, (a very experienced operator,) occasioned much pain: but the careful performance of the same operation in this country, by means of a catheter of small size which I had made expressly, afforded his lordship considerable relief, as far as the usual obstruction, from which he suffered, was concerned.

Little, if any, instruction is required to enable a patient to manipulate upon himself. The following directions, however, will serve to elucidate the subject:—

*Mode of using the Naso-guttural Probe.*—Until expertness is acquired, the patient should place himself before a glass, holding the instrument between the finger and thumb.

He then introduces it into the nasal opening, in an *horizontal* direction. Being once inserted, the slightest force will cause it to glide along the floor of the nostril uninterruptedly, until its extremity strikes against the back of the throat, the sensation of which is instantly distinguished by the patient. Here it should be allowed to remain a few seconds, and then gradually withdrawn, to be introduced in a similar manner along the opposite nostril. The operation should be followed by blowing the nose until the passages are free to admit the ingress and egress of air to and from the lungs.

I am extremely unwilling that the instrument should be supposed to be vested with greater powers than it in reality possesses: but I am bound to express my conviction, the result of careful observation and experience, that in many cases of deafness, by producing a healthy action in the mucous membrane, and causing a free circulation of air in the middle ear through the Eustachian tubes, it will be found not only the means of warding off an increase of the disorder, but in many cases the means of essential relief or cure.

When it is recollected how many thousands of cases of deafness, proved to be irremediable by ordinary means, are rapidly approaching by almost imperceptible gradations towards total deafness, the importance of any remedy which affords even a chance of arresting the disorder, still more of ameliorating or curing it altogether, will be duly estimated. One or other of these results will, I have little hesitation in saying, frequently, very frequently, follow the employment of the instrument in question. This is not its only advantage, as it proves, as I have said, of much service, by removing the obstruction to the

voice, smell, and respiration, and is beneficial in other minor points.

I am in the habit of recommending an elastic tube and bottle, for the purpose of washing the back part of the nares, the upper part of the throat, and the mouths of the Eustachian tubes. In a tumid state of the mucous membrane in these situations, it is of great importance to apply astringents, or whatever else may be employed, to the parts immediately affected. This is very imperfectly done in the usual method of gargling, especially when the posterior nares and mouths of the Eustachian tubes are intended to be acted upon. The action of the veil of the palate in most cases effectually prevents the gargle from reaching its destination. With the elastic tube and bottle, this can be done with the utmost certainty, and in cases where deafness is occasioned by tumidity of the mouths of the Eustachian canals, with the most satisfactory results, cleansing away the vitiated secretion of mucus, and reducing the membrane to its proper condition, and thus enlarging the calibre of the tubes.

The apparatus is composed of a caoutchouc bottle for the reception of the gargling fluid, and of an elastic tube to convey the fluid across the floor of the nostril to the mouth of the canal.

*Mode of using the Elastic Tube and Bottle.*—Being first sure of the permeability of the tube, and then attaching it to the bottle (the latter charged with the injecting fluid), the tube is introduced along the nostril in the same manner as the elastic probe. Before pressure is exercised upon the bottle, it is necessary to withdraw slightly the extremity of the tube from the back of the throat, to admit of the fluid being expelled; or the contents of the bottle

may be squeezed out during the act of withdrawing the instrument, whereby not only the throat and adjacent parts, but the nasal passages also, become well washed by the injection.

During the first two or three times of passing both the elastic nasal probe and the tube, slight titillation of the nostril is produced, and sometimes the eyes become suffused with water for a few moments, but this is the only inconvenience which the operation (if such it deserves to be called) can occasion.

If the facility of washing the throat through the nose were known, it would not be long before it would become a general practice; for it is very certain that gargling the throat through the mouth, though so frequently recommended, is but rarely accomplished. Owing to the action of the veil of the palate, the gargling fluid is confined to the cavity of the mouth, and rarely enters the throat at all.

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*The following Cases serve to illustrate the success which may be expected to follow the employment of these novel instruments:—*

Miss ——, aged 17, laboured under obstruction of the nasal passages. Since the scarlatina, which happened at nine years of age, she had been in delicate health; and it was evident she would never obtain that corporeal development which other members of the family presented.

Nevertheless, her intellectual precocity had always been remarkable, and had given rise to much alarm, for it appeared to augur an early death. Medical assistance was frequently required; still, however wisely administered, it failed in producing permanent good results.

At length the case came under my observation. The half-opened mouth, and consequently the vacuitous expression of countenance, the thickness of breathing, which sometimes could be heard across the room, and the nasal speech, all plainly indicated the difficulty she laboured under. She had arrived, too, at an age to be sensible of such drawbacks to her agreeable manners and intelligent conversation. From her inability to breathe freely through the nostrils, the process of blowing the nose was one of difficulty, although the abundant mucous secretion frequently rendered such a process necessary. Her nights were restless and disturbed, and in the morning she would awake with her mouth and throat dry and parched. Her susceptibility to cold was remarkable, and sadly curtailed her amusements, for she could venture out only in the most genial weather.

Beyond the trifling medical assistance which the case required she was instructed in the use of the nasal probe; and, from the moment of its employment, the pleasures of her life were enhanced to a degree scarcely credible. All her acquaintance were sensible that something had militated against the attractions of Miss ——, but few knew to what cause to attribute it; the change in her appearance failed not, therefore, to attract attention. She could now breathe through the nose and keep the mouth closed, which before the use of the nasal probe, were physical impossibilities.

Since the measles, which occurred at five years of age, H. M., aged 12 years, had always appeared to suffer from "stuffing up" about the throat and nose. In addition to this, the parents had contrasted his restless and disturbed sleep with the tranquil sleep of a younger sister. The

mouth always open, the breathing loud, the voice thick, and the speech nasal, all indicated that something was wrong. Moreover, he had never appeared to thrive like the other child, who, although two years younger, had almost shot past him in growth and strength. The parents had placed him under two or three medical men, and the usual medical treatment was adopted, which, although judicious, proved ineffectual. He had been dismissed, with the consolatory remark (often fatal, if depended on) that "he would out-grow it;" instead of this, the mother remarked that he grew worse.

The throat was nearly filled with the enlarged and projecting tonsils, and the nose was completely obstructed; the dispersion of the former was left to be attempted by medical and topical treatment, and the nasal probe passed for the relief of the latter. At the second visit, the mother stated that on her return, after a walk of six miles, feeling tired, she had lain down to sleep, with the boy by her side, and on awaking, not observing, as usual, his loud and difficult breathing, the thought struck her that he must be dead; and, in an agony of feeling which can be but feebly imagined, she turned to examine him, and found him enjoying a tranquil and enviable sleep! By a daily use of the nasal probe, his sleep is no longer disturbed, and the mouth can be conveniently kept closed.

W. B., aged 15, was admitted a patient of the Ear Institution. At five years of age he was attacked with measles, in its severest form. From this infantile fever he never seemed fully to rally. In addition to general debility, it left the disease of the ears, for the relief of which he now applied. The nose was completely

obstructed, so that the mouth was, of necessity, kept open for the purpose of respiration. The throat participated in the obstruction, and gave rise to a difficulty of respiration and deglutition. Thick and nasal speech and disturbed sleep were among the effects of his inability to breathe through the nose. The use of the nasal probe was followed by relief of all his annoyances.

A. W., aged 22, nine years ago first noticed an obstruction of the nose, attended by a most disagreeable fœtor of the breath. Every two or three days, large clots or patches of hardened secretion became disengaged, and afforded temporary relief. After living with an aunt for seven years, during which time the complaint never left her, she entered the service of Sir Charles Dalbiac, as housemaid. The disagreeable complaint soon became manifest to the household, and she was sent to me, to ascertain from what it proceeded, as, unless it could be got rid of, she must have relinquished her situation. It was clearly a morbid condition or excoriation of portions of the mucous membrane lining the nasal passages, to which the muco-purulent secretion adhered so long as to become positively putrescent. The nasal tube and bottle charged with various astringent injections, soon cured the poor girl of her most disgusting malady.

## CHAPTER IX.

SELECTION OF CASES:—IN ILLUSTRATION OF THE PREJUDICIAL INFLUENCE OF MORBID CONDITIONS OF THE THROAT ON THE VOICE, SPEECH, HEARING, DEGLUTITION, RESPIRATION, AND THE DEVELOPMENT OF HEALTH, STRENGTH, AND GROWTH IN YOUNG PERSONS.

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*Case of Enlarged Tonsils; Speech, Hearing, Respiration, Deglutition, and the general Health affected.*

F. G., 12 years of age, was brought to me, suffering from a variety of distressing symptoms, all of which were obviously referrible to the condition of the throat. His voice and speech were so unnatural, that though his friends were able to understand him, he was nearly unintelligible to strangers: he had deafness to a considerable degree; great difficulty of swallowing; his parents noticed that he was always the last to finish his meals. Respiration was evidently impeded in the throat, and altogether obstructed through the nasal passages, so that he was necessitated to carry the mouth open; when asleep, the recumbent position and unconsciousness so much increased the laboriousness of his respiration, that he frequently started up, from a dread of suffocation. Ever since an attack of scarlet fever, this had been so much the case, that it had been necessary to watch him when in bed. He was morbidly susceptible to cold, and every attack appeared to end in quinsy, which placed his life in danger. Of

course the health had suffered. He was pallid and emaciated; and the constantly open mouth which the nasal obstruction necessitated, gave an anxious as well as vacuitous expression to the countenance.

These various symptoms originated in enlarged tonsils left by scarlet fever. The Eustachian tubes were closed by the encroachment of the swellings on their apertures, which occasioned deafness. The aperture into the fauces was so much contracted, that deglutition could only have been performed with difficulty, and after careful mastication.

Previous to my being consulted, every effort had been made to reduce the size of the tonsils by cauterization, the use of iodine, and other remedies, but all in vain.

Upon examination, the morbid growths were so large and indurated, as to leave no hope of dispersing them by such remedies. The knife was therefore employed, and after three different operations, the sulci of the arches were cleared. At each step of the treatment, all the impeded functions were gradually restored—speech, hearing, swallowing, breathing, and the improvement of health, advanced together. Suitable medical treatment went hand-in-hand with the operations, and to de-obstruct the nasal passages, he was supplied with one of my nasal probes.

Two years have now elapsed since the treatment of this case commenced. In a communication lately received, his father states that the throat and nose are now quite clear, and that he swallows with the utmost facility; there is no longer snuffling nor loudness of breathing; his hearing has become as quick as ever; before the operation, asleep or awake, he could never keep his mouth closed, owing to the obstruction of the throat and nostrils; in this respect he is relieved. Lastly, the health is quite restored.

*Enlarged Tonsils, affecting the Health, and retarding the Growth, &c.*

M. A. C., a girl of strumous constitution, fourteen years of age, was brought to me, thin, pale, weak, and of stunted growth. She complained of a variety of painful and distressing symptoms, such as confirmed tonsillary disease can alone produce. Her voice was so thick and snuffling, as to be scarcely intelligible to those unaccustomed to hear her. Her hearing was defective, a watch being inaudible, unless held close to the ear. Her respiration was much affected, particularly at night; and she would often wake up with a loud scream, from the impending danger of suffocation. Occasionally she suffered much from severe pains in the chest, which were aggravated by any unusual exertion; headache, giddiness, dimness of sight, and other evidences of disordered circulation in the brain; great susceptibility to colds in the head, and acute sore throat, which never failed to increase the other symptoms of disorder. All these symptoms had been present more or less for ten years, having first manifested themselves at the age of four, after an attack of scarlatina; and, for some time before she came under treatment, they had acquired such an intensity as to threaten her life.

The difficulty of swallowing and speaking had already indicated to the patient's friends that the throat was the principal seat of disease; and on examination, I found the tonsils of such enormous size as to almost obliterate the aperture between the mouth and pharynx. From the state of health of the patient, it would have been injudicious to wait the result of medical and topical treatment; one of the enlargements, therefore, was immediately

removed, which was sufficient to diminish the most pressing evils of the case. This was followed in about a fortnight by a second operation on the opposite side, the throat having in the meantime put on a healthier appearance, and the urgency of the other symptoms diminished. The tonsils were so large, that three operations, at intervals, were required to remove them entirely. This case remained under treatment several months, during which time, in addition to the excision of the morbid growths, tonic and alterative medicines were administered.

The effects of the combined treatment were most gratifying. At the termination of the case, the general health and growth, which had previously been so much retarded, had undergone a strikingly beneficial change; and the symptoms I have described as inflicting so much misery had altogether disappeared. A child, whose arrival at adolescence was considered an impossibility, now bids fair to be as healthy and robust as her parents.

### *Elongated Uvula, causing Cough, and interfering with the Voice.*

A clergyman had for years suffered from a tickling cough, much increased by the slightest cold, to which he was susceptible in a striking degree. He constantly desired to swallow, to rid himself of an unpleasant sensation in the throat. It had produced considerable effect on the voice, which was so weak, and enfeebled to a still greater degree on any exertion of it, that he had long been unable to perform his clerical duties, and was obliged to keep a curate. Before his application to me, he was quite conscious that the uvula was the source of his disorder, as his medical attendants had often attempted to

restore it to a healthy state by appropriate stomachic medicines, gargles, and astringents of every kind. He had even tried the effect of change of climate, but nothing seemed to afford him the least benefit. On my examination of the throat, I found the uvula to be so elongated as to hang down upon the epiglottis. Of course, on the removal of the uvula, all his ailments immediately vanished. It is surprising that the measure had not long ago been resorted to, as the nature of the case was so obvious, and he had been constantly under medical surveillance. When he last called on me, he still had perfect exemption from cough, and had gained the ability of talking or reading for a long time without fatigue. There can be no doubt of the permanency of the cure, as it is impossible for the uvula to grow again after being once removed.

*Enlarged Tonsils, producing great susceptibility to Sore Throat.*

B. K., aged 35, had suffered for several years from frequent attacks of *cynanche tonsillaris*, complicated with a sub-inflammatory affection of the *trachea* and larger *bronchi*, which appeared to depend on diseased tonsils, as these glands, from being in an enlarged and irritable condition, became affected by almost every exposure to wet and cold. It should be remarked, that the occupation of this patient obliged him to expose himself often to bad weather. On several occasions, the acute attack of throat disease had threatened serious consequences, and in the intervals, the disordered condition of the throat had been treated in vain by gargles, stimulant and astringent, and by caustic applications, &c. The proposal to remove the troublesome sources of the disorder was caught at by the

patient; and without incurring any risk with little pain, and in a brief space of time, the throat was restored to a healthy condition. Though some time has now elapsed, there has been no supervention of the usual inflammatory attack; nor do I conceive there is likely to be, as there now remains no diseased structure ready to change from a chronic to an active condition on the appearance of even slight causes of irritation, which was so pre-eminently the case before the excision of the morbid tonsils.

### *Elongated Uvula, giving rise to a Cough in a Patient strongly predisposed to Phthisis.*

Miss S., a young lady, aged 19, who had long been in delicate health, and several of whose near relatives had died of *phthisis pulmonalis*, was generally attacked with a short annoying cough at the approach of winter, which proved a source of most lively alarm to her friends. During the last winter it became more severe than usual, so much so, indeed, as to cause her to lose flesh rapidly. She was unable to sleep at night, the cough becoming particularly distressing when the body was in a recumbent position. The teasing cough, and the irritation it induced, brought on night perspirations, which still further reduced her strength. She had been carefully treated by the family physician; the most approved cough medicines had been administered without producing any impression on the disorder, when at length the case came under my notice. Upon examination, the uvula was found to be of unusual length, apparently œdematous, and entirely devoid of retractile power, so that it hung loosely down, and became a source of great irritation to the throat and glottis. In this case, the utility of removing the uvula was imme-

diately evident, and was attended by the most gratifying result—the relief of the tickling and irritability of the throat being instantaneous; and this, together with the cure of the attendant cough, has, to my great satisfaction, proved permanent. I think it may be fairly considered that if the cough had been suffered to continue in this case, without alleviation, there would have been considerable danger of the lungs becoming implicated in the disorder, and of its termination in confirmed consumption.

*Elongated Uvula, threatening Suffocation.*

E. T., aged 26, in addition to deafness, had suffered for three or four years great inconvenience in the throat. When in an horizontal posture, she was frequently and suddenly seized with a sensation of choking. For months previously to my seeing her, her nights had been disturbed in this manner; and in order to avoid it she had lain with her head and shoulders supported by pillows, having observed that when standing up she escaped the annoyance. Frequently she had been kept awake, for hours together, constantly coughing, as if something were in the throat which ought to be expectorated or swallowed. Three weeks previously to my seeing her, she had not been able to eat any solid food without experiencing pain. It was stated, also, that if she attempted to speak quickly, she sometimes altogether failed. Her attention had been drawn to this fact for upwards of three or four months.

An elongated uvula gave rise to these various distressing symptoms, which, by long persistence, had also begun to injure the health.

She preferred the certainty of instant relief by its excision to the uncertainty of relief by local and remedial measures.

Twelve months have elapsed, and she still has every reason to rejoice at the removal of the uvula.

*Enlarged Tonsils, causing Snoring and disturbed Sleep.*

R. W. had been the subject of enlarged tonsils for many years. The chief annoyance he experienced from them (except when he took cold) was disturbed sleep and the noise he made when asleep. His snoring was so loud that nobody had any chance of rest near him. For the sake of others, therefore, he came to me to have the tumours removed. The operation was followed by perfect success.

*Enlarged Tonsils, attended by Defect of Speech, Respiration, Cough, and General Debility.*

E. C., residing at Cambridge, was the subject of enlarged tonsils and a chronic inflammatory condition of the mucous membrane of the throat. Respiration and deglutition were impeded, accompanied by a constant dread of suffocation; cough, too, of a most troublesome nature; added to all these annoying symptoms, my patient laboured under a most distressing respiratory stammer, attended by great constitutional debility.

*Treatment.*—Tonics. Excision of the enlarged tonsils, followed by perfect relief to breathing, swallowing, and cough; considerable improvement of the general health, and amelioration of the stammer. The latter infirmity finally became still more relieved by the observance of rhythm.

*Elongated Uvula, giving rise to Cough.*

G. N., a postman, became a patient at the "*Ear Institution*," for deafness of long standing, dependent on paralysis of the acoustic nerve. My attention was directed to the patient's throat on finding him troubled with a most harassing cough of a dry character, which was much increased by the least cold, or by damp weather. He told me that for many years he had been unable to lie on his back without experiencing a suffocative attack of cough. I found, in the elongation of the uvula, quite sufficient to account for this distressing symptom. On its removal he immediately felt sensible of having lost the source of years of annoyance. I have frequently seen him, up to the present time. The cough has never returned, but the deafness is irremediable.

*Diseased Uvula and Tonsils, causing Thick and Unintelligible Speech.*

A young gentleman, from Ipswich, was placed under my care; he was sixteen years old, and from his infancy had been a most extraordinary stammerer. Besides the stammer, there was an imperfection in his utterance, which rendered his words quite unintelligible to any except those who were much accustomed to hear him. There was an especial difficulty in pronouncing the sibilant letters. I found the tonsils and uvula so much enlarged by disease, that the entrance from the mouth to the gullet and wind-pipe was reduced to a very small calibre. At different times I removed the morbid growths from the throat, and the amendment, both in his mode of speaking and the stammer, was very decided and progressive. From a mere mumble, his speech became quite intelligible, and

the stammer much diminished. In this case much assistance was derived from educational processes; and for this he was indebted to an intelligent friend, to whose care I requested he might be confided. By the long habit of speaking imperfectly, the healthy association between the ear and voice was quite lost; and, like many persons affected with vocal defect, he not only could not produce at will the proper sounds by the organs of articulation, but he was not himself able to perceive the vast difference which existed between his own and the correct mode of speaking.

*Enlarged Tonsils, producing difficult Deglutition and disturbed Sleep.*

A little girl, aged seven years, of strumous diathesis, was brought to me by a surgeon at Clapham, for excision of tonsils of enormous size, which, by narrowing the isthmus faucium, rendered swallowing painful and difficult. It was observed that in eating she was constantly compelled to return the food again and again, to be re-masticated, until it was sufficiently pulpy to pass. Her sleep was also, from the same cause, restless and disturbed. Everything calculated to reduce the swellings had been tried, but their indurated condition left no hope of success.

My little patient submitted to the operation without a murmur, and acknowledged that it gave her no pain.

Independent of the removal of the annoyances by the operation, her health, which before was delicate, became quite established.

*Diseased Uvula, troubling the Respiration.*

Mr. D. M., 20 years of age, residing at Ripon, Yorkshire, consulted me on account of "something in the throat,"

which appeared to interfere with breathing, more especially at night when lying in bed. Being a highly trustworthy person, his employer had appointed him to sleep in the shop; but for a very long time past his nights had been restless and disturbed, which, until lately, he had attributed to the effluvia from the gas. He explained the sensation by stating that he felt something which he wished to get out of the way, but did not know whether to expectorate or swallow it, attempting both in vain. It frequently produced a tickling cough, and occasionally, in speaking, his words were suddenly arrested, and it was only "by main force" he could get them out. Palpitation of the heart was another distressing symptom. Two days before his application to me, he first began to experience inconvenience in swallowing, the food appeared to catch in the throat, and it was with difficulty he could bring it back again into the mouth, or, on the other hand, swallow it. On a day or two previous to my seeing him, he applied to a highly respectable surgeon, who, after examining the throat without detecting anything wrong, prescribed aperients and gargles.

On examination, the cause of his ailments was plainly evident. The uvula was lying on the tongue, almost reaching to its point, a long, narrow, irregular, smashed looking piece of flesh. On laying hold of its extremity with the tenaculum, I could actually bring it forward to touch the teeth.

Its total excision (agreeably to rule laid down at page 55, which, of course, was not delayed a moment) instantaneously relieved him of years of misery and annoyance.

*Enlarged Tonsils, producing Deafness.*

In the spring of the present year, a stable boy, in the service of the Earl of L——, was sent to me, from the family seat in Surrey, labouring under deafness, to such a degree as to render him useless in his avocation. It had supervened upon a cold and sore throat which happened to him some months previously. Occasionally, after yawning, sneezing, or blowing the nose, he would recover the hearing for a few minutes to a considerable extent; it would then relapse into its former condition.

On examination, the outer passages of the ears were perfectly healthy, although he had been employing remedies calculated to injure them, such as repeated syringing, oils, and drops of various kinds, recommended, too, by a medical man.—(When will the profession learn to eschew remedies so unscientific and injurious?)—The inner passages were evidently encroached upon by enlarged tonsils, left by the sore throat. Catheterism succeeded in affording relief; but, although more prolonged, yet, like the sneezing or blowing the nose, it was only temporary. Medical and topical treatment also failing in dispersing the tumours, excision was finally resorted to, and with perfect success. He suffered no pain from the operation, nor subsequent inconvenience. In six weeks the hearing became perfect.

*Enlarged Tonsils, producing Deafness and Thick Speech.*

An eminent physician entrusted his son to my care. The hearing was extremely imperfect, the voice thick and nasal, and the articulation so indistinct as to be almost unintelligible to strangers.

The tonsils were permanently enlarged, and the mucous

membrane generally was in a state of chronic inflammation. The most approved medical and topical treatment had failed in affording relief.

After excision, every symptom gradually subsided.

### *Enlarged Tonsils, affecting the Voice, and producing disturbed Sleep.*

A surgeon in the city brought his son to me, with tonsils so enlarged as to meet in the centre of the fauces: the intonation of his voice was snuffling, nasal, and disagreeable; his nights were represented as occasionally frightful—talking in his sleep, and, as it were, struggling with some difficulty. His father had employed every means calculated to disperse the tumours, without success: relief, therefore, could only be looked for by excision.

After the operation, the voice became permanently improved, the nights quiet, great improvement of the general health, and consequently considerable diminution of the irritability of his temper.

The operation was performed without pain, and the subsequent inconvenience was trifling, and entirely subsided on the third day.

### *Elongated Uvula, interfering with the Voice, Singing, &c.*

Mr. J. B——t, a professional singer, had for years experienced an irritation in his throat to such a degree as materially to affect his health and spirits. His breathing was impeded, and in singing his voice was interfered with, and latterly its quality had become deteriorated. If he attempted to sing above a certain note, he was instantly annoyed by a tickling in the throat, which at once put an

end to his song by a fit of coughing; and even if he kept to the scale to which he could conveniently reach, he soon became tired, and his voice husky and hoarse. He had frequently been troubled with a tickling cough, for the relief of which he had applied to an eminent physician, by whom he had been treated for incipient phthisis! It happened that one of his friends had seen my paper on Stammering, and had recommended it to his attention; for the first time he began to suspect the condition of his throat, and forthwith made his appearance before me.

The history of the case left no doubt in my mind that something was wrong about the throat; and, on inspection, a double uvula presented itself to my view. The bare fact of its bifurcation would not of course give rise to the inconveniences he had suffered, but one portion had become permanently elongated, and the whole body of the uvula had lost its retractile power.

I hesitated not a moment in advising its excision, which was gladly acceded to, and my patient the next moment rose from his seat, freed from all his annoyances.

In addition to the most striking immediate relief, I find, from recent inquiry, that my patient had gained full two notes in his voice, with a power of *sostenuto* previously unattainable. The improvement in its quality is no less obvious.

*Case of Cough from an Elongated Uvula.*

Mrs. T. accompanied a patient to my house who had come from Exeter to consult me relative to a disease of the ear. During the consultation she had two or three attacks of cough, which attracted my attention, and led me to inquire into the cause of it. She stated that it had been her companion for twelve long years, and it would

doubtless attend her through the remainder of her life. She had been treated for asthma; in fact, everything had been done, under a variety of doctors eminent in the treatment of chest disease; but none of their remedies afforded her the slightest relief, and she had long discontinued all medical treatment. The cough would sometimes last for five or ten minutes together, and appeared as if it would never stop. I begged permission to examine her throat, and, as I anticipated from the description of cough I had heard, the uvula was observed to be nearly twice its natural length. I was enabled to speak positively of my ability to relieve her. Persuasion was not required, for to obtain relief she would have undergone anything. In an instant the entire uvula was removed, and my patient as instantly relieved. It was a most striking example of uvula-cough, and, under the circumstances, the most interesting case I ever had.* She has never coughed since the removal of the uvula; and lately, in writing to me, she speaks of it as having been "so violent as often to threaten strangulation."

This kind of throat-cough, or, more properly speaking, uvula-cough, is much more prevalent than is generally supposed. It may be observed that relaxation or dropping of the soft palate, which of course carries the uvula with it, may produce the same effect, *without* elongation of the uvula.

### *Irritable and Relaxed Condition of the Mucous Membrane of the Throat, with Elongated Uvula.*

The most extraordinary and one of the most distinguished of English singers consulted me. For many

* Her own good fortune sadly contrasted with that of her companion, whose malady was found to be incurable.

years he had been annoyed with a relaxed and general unhealthy condition of the throat and uvula, more especially after any great exertion in singing. Often and often had he wished his uvula anywhere but in his throat, so that I found him ready to submit to whatever treatment might be deemed necessary. Observing him to be of a dyspeptic habit, it was important to ascertain how far the state of stomach influenced the state of throat. In order to satisfy myself upon this point, I prescribed appropriate stomachic medicines, and at the same time applied local remedies to the throat, more especially directing them to the posterior surface of the uvula, which seemed to be especially affected. Partial relief only was obtained.

Still I hesitated to do that which promised almost certain success—namely, remove the uvula, whilst my patient was abounding in professional engagements, and wished to defer it until he could rest for a week; but such a respite from his professional labours could not be expected, and therefore the operation was resolved on. The entire uvula was removed. The pain was trifling, and the subsequent inconvenience not worth mentioning, as may be supposed, when it is stated, that on the following evening he sang the songs usually allotted to him in the *Messiah* at the Hanover-square Rooms. In fact, during the healing of the excised surface, which takes a week or ten days, he had engagements almost nightly, and yet never felt inconvenience from the operation, neither did the cure appear to be retarded by his exertions. A better example could not be afforded of the importance of cutting the uvula according to the rules I have laid down, in order to escape the subsequent suffering which otherwise must inevitably follow. During the healing of the wound there

appeared to be an increase of the natural secretion of the throat, which sometimes got in the way, and rendered uncertain the ascent of the tenor voice into the falsetto; and my patient complained of a roughness or shaking of the voice at this important part of the musical scale, which he compared to the vibration of the edge of a piece of paper when blown upon; and his mind was strongly impressed with the idea, that the loose edge of the soft palate on the left side gave rise to this defect. Two or three slight touches with the nitrate of silver underneath the loose edge of the palate in the spot referred to, appeared to afford relief; but it is very questionable whether the circumstance was not attributable to the diminished muscular power of the palate during the healing of the wound, in which opinion I was confirmed by the ultimate effects of the operation, for when the time came that the soft palate could perform its duty and act with freedom, there was no longer the difficulty he had complained of.

The improvement in the tenor part of the voice was apparent to him immediately after the operation; but of course the falsetto (in the production of which the soft palate is so intimately concerned) could only improve after the wound had healed.

### *Case of Irritable Mucous Membrane of the Throat, with permanently Enlarged Tonsils.*

Another favourite and well-known singer is frequently the subject of a throat affection, which is readily called into existence by any impropriety of diet or change of temperature. Some time ago, he was my patient with sore throat, from the latter cause. He thought fit to take a country residence at Hampstead, and walk to town to fulfil his professional duties. The throat became

affected, and the voice consequently deteriorated, and, for a few days, the theatre at which he was engaged lost his services. On another occasion, the throat and voice became similarly affected from impropriety of diet—scarcely his own fault—for, at the friend's house where it happened, he had the sorry alternative of going without his dinner, or eating rich soup, salt fish, boiled beef, or jugged hare.

This gentleman is the subject of permanently enlarged tonsils, and probably their presence in the throat makes him more susceptible of taking cold, and contributes very materially to the dyspeptic state of stomach, of which he so frequently complains, even if they do not entirely produce it. The tenor part of the voice is unquestionably interfered with from the same cause, and would no doubt be improved by their removal. The voice is principally remarkable for the almost unrivalled quality and sweetness of the falsetto.

By the aid of stomachic medicines I have hitherto always succeeded in restoring my patient. The public singer cannot be too cautious in diet, nor too careful in his choice of residence. Above all things he should take care to reside in the same temperature or climate in which his professional avocations are carried on.

### *Case of Deafness and Defective Speech, from Enlarged Tonsils.*

E. M., nineteen years of age, residing at Stoke Newington, has been deaf fourteen years, attributable to cold and sore throat, which left a morbid condition of the mucous membrane of the throat, giving rise to effects so similar to a common cold, as to account for the statement of the mother, who says that her daughter "is never without a

cold." The hearing became gradually worse up to the time of her applying at the Institution. The speech had become thick, and in reading she was almost unintelligible. Her general appearance is much more healthy than is usually seen in such cases. The mucous membrane of the throat was much congested, and the tonsils enlarged. The nose was also obstructed, so that her breathing could be heard almost across a room. She complained of frequent shooting pains in her head, snoring at night, difficulty in blowing the nose, &c.

Catheterism and the use of the nasal probe ameliorated her condition, but did not cure. Tonsilotomy was ultimately resorted to with the happiest effects. The hearing has daily improved, and at the time I am taking these notes of her case, she can hear a clock tick in an adjoining room or a whisper without difficulty.

### *Case of Improper Excision of the Uvula.*

If certain rules are necessary to be observed in the excision of the uvula, discrimination and judgment are no less required to decide when such an operation is called for. Mr. V. P., chorus-master at one of the theatres, became the victim of a deficiency of these requisites in his medical adviser. He was attacked with an inflammatory sore throat, attended by elongation and thickening of the uvula, a very common accompaniment. The surgeon to whom he applied, not appearing to bestow a thought whether the uvula was *temporarily* or *permanently* elongated, snipped off its extremity, which, instead of affording relief, only added to the sore throat. But such an effect was not thought possible, and another snipping took place. Still no relief, and positively the uvula was again snipped.

All this time the suffering of the patient is represented as extreme. At length he became my patient. It was quite clear that the uvula should never have been touched at all, but, having been snipped, regardless of all rule, it was now really a source of irritation, and therefore its entire removal was necessitated. The subsequent soreness was slight compared with that which attended the snipping operations. Unfortunately the long-continued irritation in the throat has seriously affected the voice, and it is very doubtful at present whether it will ever be restored.

*Case of Elongated Uvula, incapacitating the Patient from following his Profession.*

Mr. H. L. writes, to thank me for the manifest improvement in his health and voice, which has followed entire excision of the uvula. The operation was performed after other remedies had been tried in vain. He considers he has gained two notes in the natural compass of his voice, G and A, with a greater power of *sostenuto*. Before he placed himself under my care he had entertained serious thoughts of relinquishing his profession. "Now, other parties, who reside in the same house, can scarcely think it is the same person singing."

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Most of the foregoing cases are illustrations of permanently indurated tonsils and elongated uvulas, which the knife only could remove. Nevertheless, numbers of cases come before me which yield to a judicious medical or topical treatment; and it is but right to employ all the means likely to be successful before the knife, which should at all times be the *dernier ressort* of the surgeon, is taken in hand.

When operative measures are found to be indispensable, it is in the highest degree satisfactory to know that in skilful hands they may be resorted to without risk, and frequently (more especially in the case of enlarged tonsils) without pain.

My experience in the treatment of considerably more than two thousand cases justifies me in saying that, in the whole range of surgery, no operations are so uniformly successful in their results as the removal of enlarged tonsils, or rather, strictly speaking, *the removal of morbid growths from the tonsils*, for the glands themselves are never, or only partially, removed.

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PLATE 2.

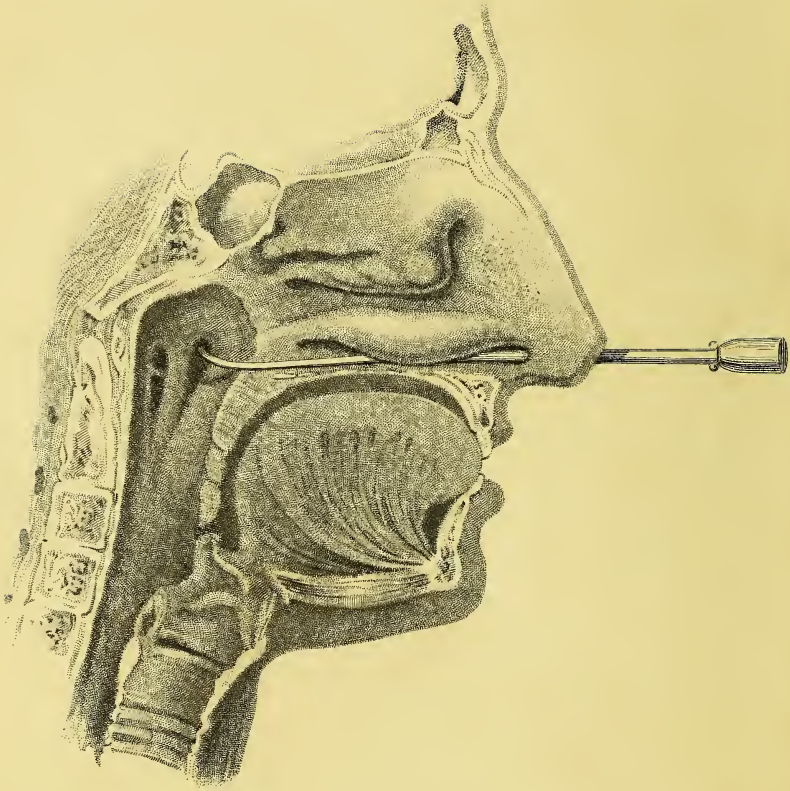
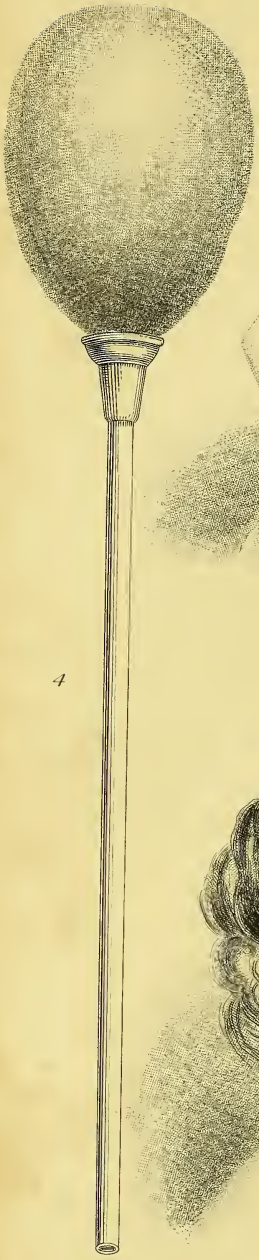


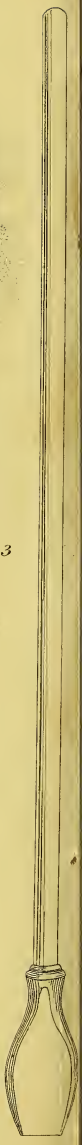
PLATE 3.



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2

# EXPLANATION OF THE PLATES.

## PLATE I.

*Fig.* 1. Natural appearance of the Soft Palate, Uvula, Anterior and Posterior Arches.

*Fig.* 2. Uvula elongated in the case of a gentleman, which for many years had produced cough, supposed and treated as of pulmonary origin.

*Fig.* 3. Tonsils enlarged, filling up the sides of the Pharynx, and materially diminishing the area of the Fauces. The voice, speech, hearing, deglutition, and respiration, are all usually more or less affected in such a case. Although the tongue is depressed, the extent of the enlargements is but imperfectly shown.

## PLATE II.

Section of the Nose, Mouth, Soft Palate, Uvula, Tonsil, Pharynx, upper part of the Œsophagus, and Trachea, showing the route taken by the Eustachian Tube Catheter along the inferior meatus and floor of the nostril into the orifice of the Eustachian Tube; showing, also, the perfect facility and safety with which the most timid patient may introduce the Naso-guttural Probe to the back of the throat, or wash the Throat by the Naso-guttural Tube and Bottle.

## PLATE III.

Sketch of the Author's Elastic Naso-guttural Probe for the removal of obstructions of the nasal passages, and the Elastic Naso-guttural Tube and Bottle, for washing and gargling the posterior nares and

nasal passages generally, the upper portions of the throat, and mouths of the Eustachian Tubes.

*Fig.* 1. Patient introducing the Naso-guttural Probe; showing, also, the horizontal direction which it takes to the back of the throat.

*Fig.* 2. Patient injecting the Throat through the Nose, by means of the Naso-guttural Tube and Bottle.

*Fig.* 3. Elastic Naso-guttural Probe.

*Fig.* 4. Elastic Naso-guttural Tube and Bottle.



